San Francisco, Calif.

November 15, 1914
25 Cents

Journal of Electricity

Devoted to the Economic Production and Commercial Application of Electricity
IN THE ELEVEN WESTERN STATES

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IN THE ELEVEN WESTERN STATES

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Good Times Are Here

THE presidential election resulted as industry hoped. The Water and Power Act met its second defeat at the hands of California voters. In Washington, the Bone Bill was rejected by a substantial margin. Jupiter Pluvius has relented, and after a year of drought Pacific Coast states are rain-soaked, streams running full and reservoirs restored to normal capacity. All of which, expressed in the words of the street, means that the electrical industry in the Western states is "sitting pretty."

As a further comforting thought Christmas is approaching, and the buying public, with full purses, will be out in force. Contractor-dealers, central stations that merchandise, jobbers and manufacturers are in a position to sell more appliances than ever before.

With business conditions so generally satisfactory, with the additional advantage of the advent of the Christmas season, there is no reason why all branches of the electrical industry, and particularly those engaged in merchandising, should not substantially benefit. But it must not be forgotten that rarely does merchandise sell itself. In order to catch the shopper's eye, an article must be attractively displayed; its advantages must be clearly explained or demonstrated before it can be sold. So don't take it for granted that, because prosperity seems inevitable, further effort is unnecessary. Help it along. Make your windows so attractive that the discouraged Christmas shopper of masculine persuasion finds his problem solved as he surveys the display. Arrange your stock so that it catches the eye of the weary feminine buyer who is looking for suitable gifts, and make the slogan, "Give Something Electrical," really mean something.

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Bone Bill Meets Same Fate as Other Radical Measures

INITIATIVE measure No. 52 in the State of Washington, the so-called Bone Bill, has been defeated. A tabulation of the returns on another page of this issue shows that a majority against it reached sixty-six thousand and that the negative vote was one and a half times that cast in its favor. Three counties only returned affirmative majorities and these were negligible in effect. The bill failed even in the home counties of Seattle and Tacoma, King and Pierce respectively, which were expected to pass it against the combined protests of the other thirty-seven; and this may indicate that even in the hotbeds of municipal-ownership experimentation, public approval of municipally owned systems is only half-hearted.

J. D. Ross, superintendent of the city light department of Seattle and chairman of the committees that managed the campaign for the bill said, "It was beaten in the avalanche of noes on all state initiative and referendum measures." Others ascribe its defeat to the country-wide repudiation of radicalism, while still others hold that the people simply rejected a pernicious measure. Whatever the opinion seems to be, it is certain that the bill did not lack publicity, both for and against, over the entire state, and certain it seems that the people of Washington are not ready to turn the utilities over to the Seattle and Tacoma municipal-ownership proponents to manage. The proponents of state ownership in Washington will not be able to laugh off the twenty-two per cent majority against their pet.

Barnum Was Not Always Right

AGAIN the California Water and Power Act has been rejected by the voters. At present writing, final figures are not available, but it is indicated by results tabulated thus far that the Act has been defeated by about the same majority as in 1922, namely two and one-half to one. There was a marked difference in the campaign waged against the Act this year as compared to that of 1922. Then for eight months or more before election the battle was carried on at almost fever heat. The very audacity of the proposal shocked and alarmed thinking people not merely in California but all over the United States. The intensive campaign of attempting to inform a million and a half or more voters brought about the defeat of the Act by a majority of some 350,000 votes.

The 1924 campaign, however, was quite different. The case for the power companies was submitted to the voters in a quiet, unostentatious way. There was little attempt at public speaking or at the organization of meetings to protest against the Act; nevertheless apparently the Act was beaten quite as badly this year as two years ago. It is undoubtedly true that in the comparatively short time of two years between attempts the impression made by the first campaign still lingered in the minds of the voters. It fell to the lot of the electrical industry to reconstruct an intelligent interest in the minds of the voters upon the basis of the impression that was still there. At first thought, it would seem that the great expenditure in time and nervous energy in combating this socialistic attack upon our industrial structure must be entirely an economic waste, yet we do not believe that this is altogether so. An attack of this kind helps to develop weaknesses in the existing structure whether of service, public relations or any of the problems that beset the power companies. To develop a weakness is automatically to open a way to devise ways and means for its correction. We venture to state that, in our opinion, as a result of the two campaigns to socialize the generation and application of electrical energy, the power companies in California today are in a stronger position, are more firmly intrenched in the hearts and minds of the people they serve than ever before.

Barnum said that the people like to be fooled. President Coolidge said that in a country like ours, governed by the people, the majority, when given an opportunity to express itself intelligently on any public question, is always right. We are inclined to accept the viewpoint of the President.

Outcome of Election Assures Prosperity

OUR bogie man seems to have been stuffed with straw. Robert M. La Follette, the sword of Damocles that has been hanging over the head of our most cherished institutions, has gone down to defeat in spite of the three-cornered fight, in spite of the combination of every element of unrest, discontent, prejudice and class hatred. President Coolidge has been elected to the highest office in the land by a majority, both popular and electoral, that almost establishes a record in the annals of American na-

tional politics. It is more than a mere coincidence that this fact should be accompanied by a statement that there was an outpouring of voters in a percentage of the total registration that we believe never before has been exceeded in any national election. The shrewd politician knows that there is a certain class of voter that always votes; there is another class of voter—the so-called "intelligent class" (save the mark!)—that is dangerously, almost criminally, apathetic, when it comes right down to the exercise of the franchise rights of the American citizen. It seems that it is this class that was aroused to a sense of its duty to its country, an encouraging sign of an awakened sense of civic duty.

Another interesting phase of the landslide for the Republican candidate was the utter failure of the labor leaders to deliver the votes of their membership en masse to the socialist candidate. It seems quite evident that, regardless of any social or industrial association affiliations, the American citizen is more than prone to vote as an individual; even more, he is inclined to resent being delivered on a wholesale plan to any candidate without his personal consent.

At any rate, the immediate effect of the election has already justified predictions freely made that it would strengthen our business and industrial relations both at home and abroad. We can see no pitfalls ahead for the execution of a development program for the United States never exceeded in the history of our country. With the refinancing of Europe practically an accomplished fact through the genius of the Dawes Reparation Plan; with the type of national government that we may expect settled conclusively for at least four years to come; with the defeat in California and Washington of the iniquitous California Water and Power Act and the Bone Bill, and with the prospect of a copious rainfall this winter, we can see no reason why every integral branch of the electrical industry should not breathe a sigh of relief, take off its coat, roll up its sleeves and go to work.

Rains Bring End to Power Shortage

REPORTS from all sections of the Pacific Coast that have suffered from the drought during the summer and fall indicate that the rains during the early part of this month have restored conditions to normal. Stream flow has been increased materially, reservoirs are filling up, and considerable snow has fallen in the higher mountains. According to weather bureau reports, the seasonal rainfall to date (Nov. 12) in California is greater than for any similar period in 75 years.

The specter of an acute power shortage which has worried the utilities in southern California for months has been dispelled. Antiquated steam plants which were pressed into service at considerable expense have been shut down. In sections where there has been curtailment of power usage, restrictions have been removed.

The California utilities are to be complimented for the fine spirit of cooperation shown throughout the shortage. By means of interconnection large blocks of power were exchanged. The splendid attitude assumed by consumers and by civic bodies in sections where curtailment was necessary was also gratifying. While the situation which arose is to be regretted, and the experience was costly as far as some utilities were concerned, we feel certain in predicting that there will not be another shortage.

Make This an Electrical Christmas

THE approach of the Christmas season with its attendant gift-giving opens another opportunity for contractor-dealers. There are almost countless houses that may be made into homes by the simple expedient of adding an outlet, or two, or three, where they will provide additional comfort and convenience and where they will make possible the use of some electric appliance not now enjoyed. It is an easy matter for the enterprising contractor-dealer to sell this idea to the masculine member of the family and also to see that some new appliance goes into the home. Electric appliances offer an unusually happy solution to the perennial question of what to give for Christmas, and they present an especial appeal to men, who readily recognize their service and labor-saving qualities. Contractor-dealers who are on their toes will take advantage of this Christmas season to increase their wiring and appliance business.

The Danger of the Absentee Landlord

AN interesting example of financial legerdemain is what is known as the holding company. For the benefit of the uninitiated it might be explained that the holding company is formed for the purpose of controlling a majority through the agency of a minority. To elucidate further, a holding company capitalized at $51 could conceivably control and own fifty-one per cent of a company capitalized at $100. To pursue this line of thought further, a man or a group of men who own fifty-one per cent of the holding company could in turn control absolutely the operations of the $100-company, although they themselves actually represented but twenty-five per cent of the money invested in that company.

Conceivably, in theory at least, there awaits an opportunity for some genius of the Ponzi order to devise ways and means whereby through an investment of $5 or so through the agency of an infinite number of holding companies, each superimposed upon the other, he might control the United States Steel Corporation or the Standard Oil Company. The electrical engineer's development of remote control certainly is mere a-b-c compared to the financial wizard who devised the holding company. Again, does the holding company do any constructive good? We believe not. On the contrary, from the standpoint of the public and of industry in general, we can see in the holding company little, other than a bad example of absentee landlordism, with an absence of direct responsibility and accountability to those whom the corporation serves, plus a pyramiding of capital through the superimposition of the holding

company or companies upon the original enterprise, which presumably actually renders the service that produces the earnings.

If the Western states, or if California or Washington, for instance, in the crisis that ended so happily on Nov. 4 last had been in the position of having all its power resources controlled by holding companies far away from the scene of battle, they would not have been able to present to the enemy the united front displayed by power companies during the recent campaign. It is a great advantage to the people in these states, if they could only realize it, that those men entrusted with responsibility for the administration of these properties are guided solely by their desire to develop them to their utmost in terms of service to the consumer, and that the operation of the property purely in the interest of monetary return is utterly foreign to their scheme of things.

California Seems to Have Caught an Expensive Fish

THE story of the fisherman who spent $100 for tackle, $200 for a two weeks' vacation, caught one little fish, fell in the river, contracted pneumonia and paid out $250 more in hospital and doctor bills has a curious analogy in California. That state has just lost or spent several millions of dollars for an indeterminate number of fish by the passage of initiative measure No. 11 which prevents for all time the development of hydroelectric power on the Klamath River from the mouth of the Shasta River to the sea. The power resources which have thus been rendered useless aggregate 500,000 hp. and include the 100,000-kw. development of the Electro-Metals Company of San Francisco, plans for which have progressed to the point where the Federal Power Commission had already issued a conditional preliminary permit.

The measure was initiated by the California Fish and Game Commission and others, and in securing its passage a sentimental appeal to fishermen and sportsmen of the state was made. The plea that the Klamath River was the last spawning ground of the salmon and one of the few remaining "fisherman's paradises" in the state met with ready response despite the efforts of the Eureka Chamber of Commerce and others to insure the future industrial growth of a comparatively undeveloped section rich in natural resources by securing an ample supply of cheap hydroelectric power.

The Electro-Metals Company's preliminary permit was voted by the Federal Power Commission only on the condition that a license, if granted, should require the licensee to construct fishways or take such other measures as would insure the maintenance of existing conditions as to fish migration and fish culture on the river. In this action the commission took the stand that protecion of the fish was vitally important but that means could be found to save the fish and at the same time permit development of the power resources.

Despite this assurance and despite the tests which are being made in Washington and Oregon to determine means for transporting salmon over high dams, the measure became a law. Now California has lost an important power resource, the development of a rich section of the state is impaired, and the fish are "saved." But, like the fisherman, we feel that California has caught an expensive fish.

Must the Colorado River Development Wait Two Years More?

THE speedy determination of a policy of development for the Colorado River hit another snag in the Arizona election. George W. P. Hunt, incumbent, has been returned to the gubernatorial chair for the fifth consecutive time. Seemingly two years must again elapse before that state will act upon the Colorado River Compact. In the meantime power development, irrigation and flood control are again subject to the vagaries of Arizona politics.

Opposed to Governor Hunt was a candidate who announced himself in favor of the immediate settlement of the Colorado River question. But politics prevented his election. That he lost by a bare majority of 1,012 votes indicates that the people are not all thoroughly in accord with the policies of the present chief executive of the state.

The Colorado River is one of the few great natural resources within the boundaries of Arizona. Its early development means much to the people of that commonwealth. Yet until Arizona ratifies the Colorado River Compact, nothing can be done because the Federal Power Commission has announced that it will grant no permits nor licenses until the several states concerned have reached an agreement regarding the equitable distribution of the waters of the river and this agreement has been ratified by Congress.

Many surveys of the river have been made and much of the preliminary engineering work completed. Construction on one project at least could be started within a short time provided a license was issued. Not until actual construction is started will Arizona begin to benefit.

It would be wise for Governor Hunt and the newly elected legislature to take these facts into consideration, and if the Colorado River Compact is not satisfactory to the state, to take steps to draw up a treaty that is. If not, the voters may not be so acquiescent two years hence.

Following the Footsteps of the Pilgrim Fathers

ONE of the earliest arguments against government ownership in this country is to be found in the sign which marks the site of one of the first houses erected in Plymouth, Massachusetts. "Property," says the sign, "was originally commonly owned, but it was found that homes and improvements were not made until the land was subdivided into private holdings." Thus early in the history of American independence, in that first hard winter of 1608, did our forefathers recognize the inevitable failure of enterprises which are everybody's business and therefore nobody's concern. With that first step they placed the fate of this country definitely in the channels of private initiative based upon private ownership.

BLIND Slough Dam of the British Columbia Electric Railway Company at Stave Falls, B. C. The dam was constructed in connection with the company's Stave Falls development and raises the level of Stave Lake 22 ft. Water storage has been increased from 168,000 acre-ft. to 465,000 acre-ft. The dam is 640 ft. in length and was built as part of the project increasing the capacity of the Stave Falls power plant from 35,300 kva. to 55,125 kva.

The 18,000-Kw. Long-Bell Steam Plant

THE recently completed steam plant of the Long-Bell Lumber Company at Longview, Wash., embodies many advances in steam plant design. Included among these are a special belt-conveying system for handling hog fuel; the construction of the plant on foundations below the high water line and protected by dikes; the extensive use of motor-driven auxiliaries and the intake of circulating water through a system of canals and ponds. The plant was constructed in record time under the supervision of Charles C. Moore & Company, Engineers, Inc.

THE heart of the electrified lumber mills and logging operations of the Long-Bell Lumber Company at Longview, Wash., is the recently completed power house which embodies the latest advances in steam plant design. The plant has a rated capacity of 18,000 kw. and contains three 6,000-kw. turbines, with provision in the present building for one additional turbine. It is designed for an ultimate capacity of 36,000 kw. The magnitude of the Long-Bell project, as compared with other sawmills, can be judged when it is known that the average large sawmill in the Pacific Northwest does not use to exceed 3,000 kw., the great majority of plants being operated with less than this amount of power. Charles C. Moore & Company, Engineers, Inc., designed the plant and furnished the equipment.

Soil tests showed that piling would be necessary, and over three thousand piles, up to 60 ft. in length, were driven, practically all by jetting as the only means of getting them down to the desired depth. The plant and mill site are below high water level and are protected by dikes. The piling is cut off below the permanent ground water line, and on this is built concrete foundations for buildings, machinery and stacks. It is a notable feature that, whereas the first pile for foundations was driven on June 18, 1923, in just one year, on June 18, 1924, J. W. Martin, construction manager of the Long-Bell Lumber Company, lighted the first fire under the boilers.

The present power plant building is 192 ft. wide and 296 ft. long, and the equivalent of about five stories in height. The three permanent walls of the building are built of concrete brick, finished on the outside with fire-flashed brick of the same material. Windows and doors are protected by rolling steel shutters, and the plant is of fireproof construction throughout, being entirely supported on structural steel with brick curtain walls. In connection with the plant, there are two reinforced concrete chimneys, each 21 ft. inside diameter at the top and 300 ft. high, stacks being designed to serve the ultimate plant.

There are many features of special design in the plant. The fuel conveying system is complete, based upon certain ideas proposed by the purchaser and developed by the contractor. Belt conveyors are used for carrying the fuel from the fuel house to the boiler plant; these conveyors are 48 in. wide, troughed, and in some instances run at steep angles. The boiler feed conveyors consist of cables with cast steel flights, and are operated by means of gap wheels and reduction gears. A total of four boiler feed conveyors is installed, two conveyors feeding the boilers on each side of the boiler house. All conveyors are motor driven, and the control of the conveying equipment is automatic. When the conveyors are started up by pushing the master control button, they start with a time element between each one, in order to reduce the starting load and prevent an excess of fuel collecting at any transfer point. This control is secured by means of automatic time relays. All of the conveyors in operation can be shut down by pushing one button.

The fuel storage house with its conveying system was installed by the engineering staff of the Long-Bell Lumber Company.

The boiler plant consists of eight 1,200-hp. boilers, designed for 250 lb. pressure and supplied with superheaters to give about 125 deg. superheat. The boilers are set with large extension furnaces and big combustion chambers, and most excellent results are being secured, it being possible to operate the boilers at as high as 200 per cent of rating with the ash pit draft doors practically closed, but the total capacity has not yet been determined. The boilers are equipped with soot blowers. The elimination of smoke and cinder was a feature of the design on which particular stress was placed by the purchaser, and the results in this respect which have actually been secured are very satisfactory.

The plant has surface condensers, and feed water is secured from wells adjacent to the plant, the water being treated in a cold process water softener and filtered through pressure filters. Filtered water is also used for various other purposes about the plant.

The turbine plant consists of three 6,000-kw., 13,200-volt, 60-cycle turbo-generators. The power is distributed through a modern switchboard, remote control switches being used throughout. Direct current motor-generator sets with a storage battery floating on the line furnish control current for the

switchboard and also power for emergency lighting. Along with a motor-generator exciter set, a dual drive exciter is installed, having a steam turbine and a motor drive, either one capable of operating the exciter at full load. For purposes of heat balance the load can either be carried by the turbine or the motor, or by both. The plant also contains two 250-kw. direct current motor-generator sets to furnish power for cranes and other electrical equipment about the yard and sawmill.

Power for 2,200 and 440-volt station auxiliary motors is supplied by a bank of three 1,500-kva. three-winding transformers, an additional transformer being installed as a spare. Starting and running oil circuit breakers for all 2,200-volt motors are located in a concrete and transite station auxiliary bus structure. The starting bus in this structure is supplied by a special bank of starting compensators.

There is installed one large motor-driven air compressor, which furnishes compressed air for the sawmill. A small motor-driven air compressor furnishes air for general power plant service.

The condensing equipment consists of three surface condensers and auxiliaries. Steam jet air pumps of the two-stage type, with surface inter and after condensers, are used. Duplicate hot-well pumps of centrifugal type are provided for each condenser, one with a motor and the other with a steam turbine drive.

Circulating water is taken from the Cowlitz River through a canal to the main storage pond, thence through additional canals to the log pond adjacent to the plant. All of these waterways were dredged, material being used for diking purposes. There are four centrifugal circulating pumps of different capacities, two small pumps each being designed for full load on one turbine, and are operated one by steam turbine and the other by motor. The large pumps are motor-driven and of different capacities. Water from the log pond is screened through revolving screens into a concrete intake well, from which separate suction lines run to the pumps. The pumps discharge into a header from which water is taken to the condensers and discharged into a header running over the dike into the Columbia River. When the plant is extended, a second discharge header will

PRINCIPAL EQUIPMENT OF LONG-BELL LUMBER COMPANY POWER PLANT

GENERAL

Location of plant	Longview, Washington
Character of service	Sawmill load
Capacity installed, kw.	18,000
Capacity present building, kw.	24,000
Capacity, ultimate, kw.	36,000
Dimensions present plant bldg., ft.	192 x 796 x 5 stories equivalent height
Type of construction	Concrete and brick on piles

BOILERS, SUPERHEATERS AND FURNACES

Manufacturer	Babcock & Wilcox Co.
Number of boilers	8
Type	Stirling, Class XII-51
Steam-making surface, sq. ft.	11,950
Working pressure, lb. gage	250
Superheat at rating, deg. F.	125
Steam temperature, deg. F.	531
Superheaters	Babcock & Wilcox Co.
Type	Single U tube convection
Furnaces	Hog fuel, fed through chutes

STACK

Type	Coniform, reinforced concrete, with brick lining
Designed by	Chas. C. Moore & Co.
Labor by	Rust Engineering Co.
Diameter at top, inside	21 ft.—0 in.
Height, ft.	300

BOILER-FEED PUMPS

Manufacturer	De Laval Steam Turbine Co.		
Type	Centrifugal		
Number	1	1	1
Size, in.	8 in.	6 in.	8 in.
Capacity, 1,000 lb. water per hr.	800	360	800
Drive (turbine or motor)	T	T	M

FEED-WATER HEATERS AND METERS

Heater manufacturer	Cochrane Corp.
Type	Open, with storage tank
Number	2
Normal capacity, lb. per hr.	400,000
Venturi meter, one	Builders Iron Foundry
Capacity, lb. per hr.	1,129,000

MISCELLANEOUS PUMPS

("MDC"—"Motor-driven Centrifugal")

Screen Washing, 2, MDC, 600 gal. per min.	De Laval Steam Turbine Co.
Turbine-bearing water, 2, MDC, 520 gal. per min.	De Laval Steam Turbine Co.
Trans. cooling water, 2, MDC, 50 gal. per min.	Krogh Mfg. Co.
Air washers, 3, 30,000 cu. ft. air per min.	Spray Engineering Co.
Boiler Wash pump, 1, MDC, 500 gal. per min.	De Laval Steam Turbine Co.
Sluice pumps, 2, MDC, 800 gal. per min.	Byron Jackson Iron Works
Desuperheater pump, 1, MD Triplex, 35 gal. per min.	Goulds Mfg. Co.

WATER-PURIFYING SYSTEM

Sedimentation tank, one 18 ft. dia. x 30 ft. high	Chicago Bridge & Iron Works
Filtered-water storage tank, one 500,000 gal.	Chicago Bridge & Iron Works

FUEL-OIL BURNING EQUIPMENT

Fuel-oil pump, one duplex steam driven	9 in. x 6 in. x 10 in.
Oil heater, one vertical	Griscom-Russell Co.

CONVEYORS

Main and shuttle belts, four 48 in.	P. H. Reardon Co. & Pioneer Rubber Mill
Boiler feed (cable), four 24-in. trough	Various manufacturers
Conveyor drives, 8 motor-driven with speed reducer	Falk Gear Corp.

TURBO-GENERATORS

Type	Curtis Horizontal
Manufacturer	General Electric Co.
Number installed	3
Generators	Three-phase, 60-cycle, 13,200 volts
Capacity, kw. at 80 per cent power factor	6,000
Speed, r.p.m.	1,800
Oil filtration system, Richardson Phoenix	S. F. Bowser & Co., Inc.

CONDENSERS AND AUXILIARIES

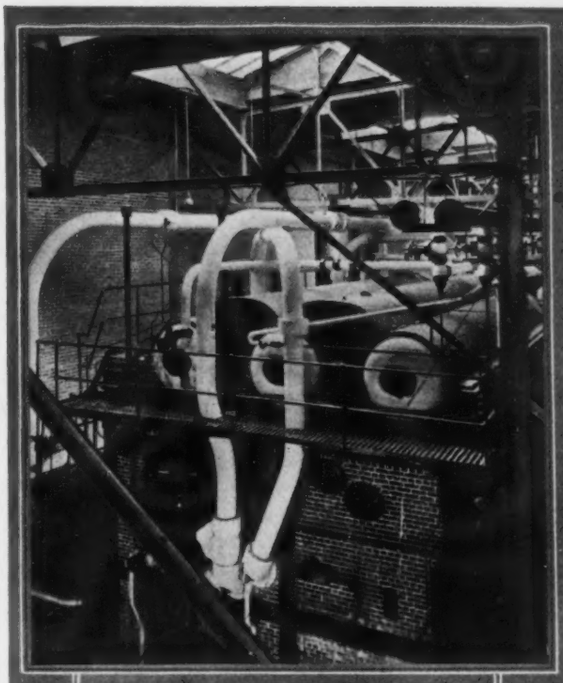
Surface condensers, 3, with auxiliaries	Wheeler Condenser & Engineering Co.
Surface, sq. ft.	10,000
Steam-jet air pumps, 3	2-stage with inter & after condensers
Hot-well pumps, 6	3 motor-driven, 3 turbine-driven
Circulating pump, centrifugal, motor-driven, 3	One 31,000 gal. per min., one 23,000 gal. per min., one 8,000 gal. per min.
Circulating pump, centrifugal, turbine-driven	8,000 gal. per min.
Rex traveling screens, motor-operated, Chain Belt Co.	Three 8-ft. wide x 32-ft., two 6-ft. wide x 32 ft.

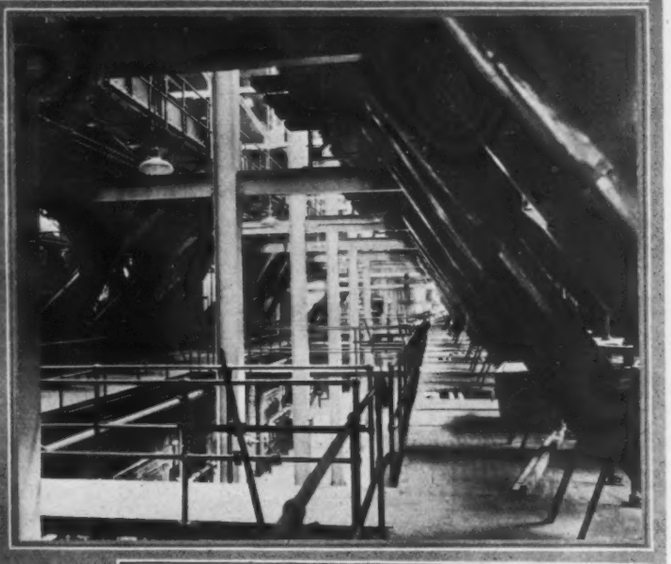
MISCELLANEOUS ELECTRICAL EQUIPMENT

Motor-generator sets, two, 300 kw., 275-volt	General Electric Co.
Exciter, one, 200 kw., 125-volt, duplex drive	General Electric Co.
Exciter, one, 200 kw., 125-volt, motor-driven	General Electric Co.
Motor-generator sets, two, 25 kw., 170-volt	General Electric Co.
Switchboard	General Electric Co.
Auxiliary transformers, four, 1,500-kva., 13,860/2,200/460 volts	General Electric Co.
Transformer inter-cooler	Wheeler Cond. & Engineering Co.

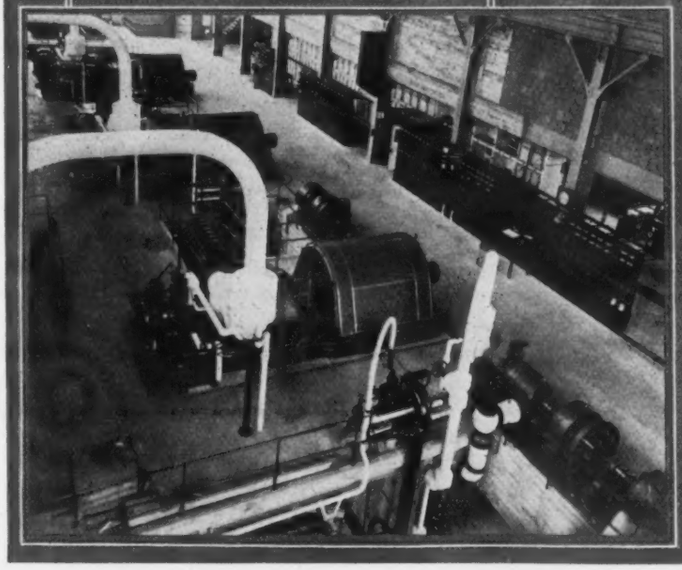
MISCELLANEOUS MECHANICAL EQUIPMENT

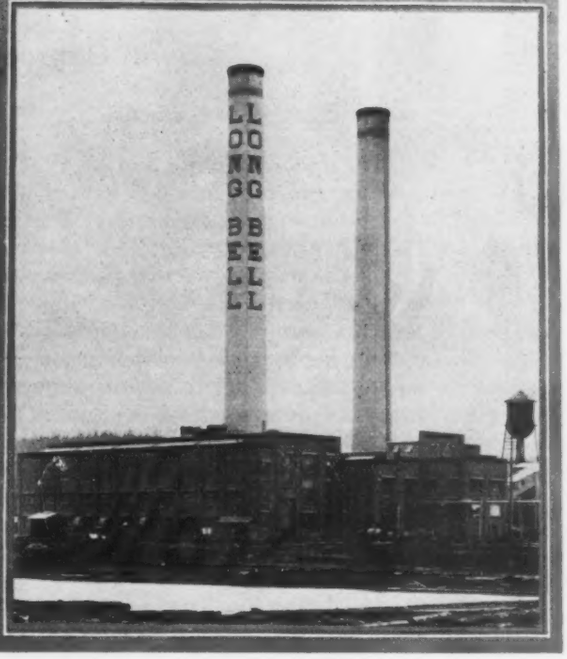
Air compressors, two	Ingersoll-Rand Co.
Traveling crane, one 25-ton	Whiting Corp.
Soot blowers, 48	Diamond Power Specialty Corp.
Boiler feed regulators, 16 Copes	Northern Equipment Co.
Steam flow meters, 11	Cochrane Corp.





VIEWS of the 18,000-kw. plant of the Long-Bell Lumber Company at Longview, Wash. At the upper left may be seen the top of one of the eight 11,950-sq.-ft. Stirling boilers, and above at the right is shown the room containing the oil circuit breakers for handling the 18,000-kw. output generated at 13,200 volts. Hog fuel, delivered by 48-in. belts and scraper conveyors, is fed to the furnaces through the chutes shown at the center right. The generator and turbine room and the exterior of the plant are shown in the illustrations at the lower left and the lower right.





be added. A check valve is provided in the discharge line to prevent water from siphoning back into the plant in case of a broken pipe line. Each circulating pump is protected by multiport check valves and electrically operated gate valves, so that any pump can be shut down for inspection and repairs. The check valves are of special construction for the service required.

The installation of the circulating water intake with screens was a difficult problem, the soil being loose sand and gravel. The bottom of the intake had to be located considerably below water level. Both ordinary and sheet piling had to be used to prevent settling and to prevent the bottom from flowing upwards, so that finally, within a cofferdam, the excavation had to be made under water and concrete placed under water. After the bottom was sealed, the construction was completed inside the cofferdam. Separate motor-driven pumps at the power plant, taking their suction from the screen chamber, furnish water for washing the screens, the debris being drained to waste.

Two open-storage type feed water heaters are used, either one of the heaters being large enough for ordinary purposes. The storage space of the additional heater is used as a reservoir to prevent wastage of hot water, the additional heater being used for breakdown service. It will be used continuously in the ultimate development of the plant. A large amount of hot water is returned more or less intermittently from the dry kilns of the sawmill. This water is of good quality and at high temperature, and cannot profitably be wasted to the sewer.

A complete system of ash sluicing is provided, with a large ash pit under each boiler, with flooding pipes and a system of sloping concrete trenches running to two motor-driven, specially designed ash pumps, which discharge the material into a concrete ash sump outside the building, from which ashes are removed by locomotive crane.

A complete lubricating oil system for turbine bearings is installed, with necessary oil tanks, filters, pumps, etc.

On account of the debris which might be in the water, the oil coolers for the turbines were supplied with extra large tubes. Special centrifugal pumps take the cooling water from the intake and discharge it to storage tanks on the roof of the power plant, in order to provide a continuous supply of water to the turbine bearing oil coolers. The water, after being passed through the turbine oil coolers, is discharged to waste.

Each turbine is provided with air washers for cleaning and cooling the air. Air is taken from the turbine room basement and is discharged through galvanized iron ducts to the outside of the building.

A list of the principal equipment in the power house accompanies this article.

The plant has been in operation since the middle of June. It was completed in ample time to operate the sawmill as required. The plant was first started with oil fuel, and four of the boilers are equipped to burn oil as an auxiliary. To start a plant of this kind it would be practically impossible to fire enough slab wood, therefore oil fuel was used in order to get the plant started and to obtain a regular supply of mill refuse fuel for the boilers. The plant has more than fulfilled expectations in performance, and is unusually substantial and complete in design and construction. Steam flow meters, draft gages and thermometers are provided throughout where they will be of service. Ample walkways, stairways and platforms give access to all parts of the plant.

The Saving Graces—Humor and Song

Twin Byproducts of Conventions

By Wm. A. Cyr

DUSK and the shadows falling and all that sort of thing, finds the conventioner with a lot on his mind and nothing on his hands. The stern business of making the country safe for electricity has been done for the day. Co-ordinate Inductance has been induced to co-ordinate, electric range sales have been cooked up, automatic bookkeeping systems have automatically been filed, transportation problems have been transported, there's nothing personal left in the Personnel, and lo! the moonlight sits on yonder bank.

In this restive, poetical, portentous moment there wafts to the ear of him who sits pecking puns from a typewriter in the all-night office of the convention daily news-sheet, the music of the spheres. Bedlam has broken loose again.

Is not this the hour, nay, the beginning of an evening—of song, one of the saving graces of a convention? It could hardly be called an even' song, that one hears, though, for none of the parts come out even. They may all have started on the tape but before long one hears that:

"Sweet Adeli-ine—Goes Where Papa Goes—
That's the Curse of an Aching Heart!"

During this same potent hour, it is, that there emerges Skewby X. Blump, the embodiment of that other saving grace, Humor. He comes to solve in his unique way the unsolvable problems of the day and age. And we have need for Skewby and his sister, Sweet Adeline.

I become really serious when I think of humor. To my opinion there is no more powerful, more devastating energy in the world. For it attacks human minds, which in turn attack and conquer the physical universe. Properly and scientifically used, say as an illuminant, it makes the most penetrating

searchlight conceivable. And yet it seems to have been let as much alone by the electrical industry as if it were marked "20,000 Volts, Danger."

Directed by the skilled hand of a "humor engineer," it could dynamite any bogey ever invented. Could the Bone Bill and the California Water and Power Act, revealed as colossal jokes, stand as pompously in the eyes of the voters as they now do and be anything than laughed off the stage? Certainly, if ever the Eighteenth Amendment is alleviated, it will have been because the risible attacks made on it by the press have undermined it, not because of the dignified struggles of serious bodies of believers in personal liberty.

Altogether the electrical industry, like many another industry, has regarded itself far too seriously. The merest hint of criticism has been taken as an affront and a delegation has been sent by a much concerned management to the source of the hint, to have it swallowed, if possible, and apology made. The "second Louie" in the army, seriousness to the nth degree, was the one who took to task the rookie who forgot to go through the formality of a salute. On the other hand the general had got over all that long ago.

When the guns of the jokesmiths are turned upon utilities, as they so often are, it only remains for the industry to see itself humorously and join in the fun. It is no fun teasing someone who doesn't get mad. The ability to take a joke on himself is the only protection that avails against the blasts of humor.

Skewby X. Blump, then, solving the water shortage by his terse phrase, "Don't drink any of it," and the reporter's answer, "We haven't and we won't," was classic. It symbolizes the rising of a giant industry to a bigness that knows no obstacles in even hard times. For Skewby was invented by one who, deep down inside him, was feeling for his company and his management, the real terror of the water shortage.

"Call for me tomorrow," said the mortally wounded, yet still jocular Mercutio to his friend, Romeo, in Shakespeare's play, "and you will find me a grave man"—is one of the bravest lines in literature.

The fact that presidents and general managers of great power companies allow themselves to be called Frankie and Willie in an irrelevant convention paper, speaks well for the great thing that a convention is. There is migghty little bunk in that sort of situation. Frankie and Willie, for all their power as heads of power corporations, become great human beings instead of exalted alabaster statuettes.

Golf, I have said, is a sport for engineers and organizers. Moisture has some few excuses in its de-pomping qualities, but in the third great byproduct, Humor, there is more honest promise to the industry at less expense of soul, material or money, than in any other phase of conventions.

My gosh—what about Adeline? She's been left out in the corridor warbling her fool head off all this while. Will you believe me when I say that Adeli-ine song is the first outlet for fun—humor, the first step down from the pedestal of self-importance and the swelled head. Song is so much darn fun, embodies so much foolishness, and limbers up the whole system so completely that it is the first requisite to an enjoyment of humor—and consequently of life.

The golfer turns to golf for relaxation and finds himself as completely enmeshed in scientific practice, formality and mathematics as he was in business from which he sought golf as an escape.

The foggy individual has sought in the depths of the moist mist for release from pursuing thoughts on reality—and made more or less of a mutt of himself in doing so.

Prof. Skewby X. Blump, evolving the planks of his presidential platform—Wild women, Old fashioned song, and Hard licker.

But he who woos humor and song and gives his whole heart to them, achieves the same absolute peace of mind and intoxication, if you please, without the headache chaser.

And believe it or not, some of the most absolutely abandoned singers at Coronado went through every song in every quartette in the "gosh dinged house" without previous oiling up—strange as that phenomenon may seem. It is merely a superstition that a full tank is the more resonant; science doesn't bear it out. All one needs is a sense of humor.

Ah—there now—I've gone and done it. Slap a man in the face, but don't dare to say that he lacks a sense of humor. Cannot the same be said for conventions?

Better Service for the User of Electrical Appliances

By M. A. MacGillivray

ONE of the problems of the electrical industry today is to remove the mystery that surrounds, not only the technic of electricity itself, but much of the business of the industry. The electrical contractor-dealer who fails to justify many of his charges is guilty of maintaining this atmosphere of mystery. He may be leaving the impression that the electrical contractor-dealer is a bandit who works on the ignorance of his customer. And by that attitude he is forcing into department stores and other shops business that rightfully belongs to him.

Here is where the electrical contractor-dealer really has an opportunity to cash in, if he will press his advantage. There is no one better qualified to clear up much of the mystery of electricity than the man in the electrical business. Clearing up the mysteries does not mean that a course in electricity must be conducted in connection with the business. To win his confidence the electrical contractor-dealer need only show the customer just what is wrong. And the customer is usually interested in getting some inside information on the subject of electricity even though he does not understand it completely.

Working on this theory, H. H. Courtright, president and manager of the Valley Electrical Supply Company at Fresno, Calif., has introduced an innovation in servicing appliances which should be studied by others in the retail field.

In connection with the appliance department in this store is a service department that is a step in advance of the usual methods of handling services. Here all cases of appliance trouble are handled. Under the supervision of a specially trained man, the trouble is diagnosed immediately, in most cases before the customer's eyes, and a report made as to the cost and time necessary to make repairs. Minor repairs, such as missing screws or bolts or worn insulation on cords, are made at no cost to the customer. This free servicing of minor troubles goes a long way towards doing away with amateur repairing, which frequently results in more harm than good. The average customer knows little about electrical goods and often thinks that only very minor repairs, costing perhaps a few cents, are necessary, when, for example, the real trouble may be a burned-out element. To receive a bill several times the expected amount is disconcerting, to say the least, and often results in distrust and suspicion on the part of the customer. An estimate of the cost of repairs is made for the customer before repairs are made. This is an important element in maintaining a friendly attitude between patron and customer.

The service department relieves the man at the

Interior of display room of the Valley Electrical Supply Company

counter of the responsibility of estimating cost and attending to repair work, making it possible for him to devote his entire time to selling. Chances for delay in sending the article to the shop to be repaired are eliminated. Under the old system the salesman taking charge of the faulty appliance would, with the best of intentions, tell the customer that the appliance would be ready at a certain hour. But in the rush of business that followed, the article might be forgotten only to have the customer appear for the repaired appliance. This would mean a lengthy explanation from the salesman and another call for the customer. Or it might be that when the customer called, the first salesman would be out and other salesmen would know nothing about the repair job, giving the impression of inefficiency on the part of the salespeople.

Time necessary to make repairs in the service department often amounts to only a few minutes, and the customer will prefer to wait. This offers a fine opportunity for salesmen to show the customer through the nicely appointed display rooms of the Valley Electrical Supply Company, paving the way for future sales and creating a friendly interest in the store. A chance to show and explain new electrical appliances and fixtures to an interested audience of this kind is one that is not overlooked.

It sometimes happens that when a faulty appliance is examined it is found that the cost of repairs will exceed the value of the article. This is explained to the patron and more often than not results in an immediate sale.

The system of tagging used by the Valley Electrical service department is interesting and effective. A bright red tag, perforated in two places, is used. One-third goes to the patron, one-third is kept in the service department office and later filed, and the other part is attached to the article and accompanies it to the shop. Each part bears the same number and information, and there is little chance for mistake. The bright red color is for the convenience of the shopper so the card may be easily found among other cards and papers in the usually overworked handbag or pocket. Files or cards kept in the office show that in the seven months the department has been in existence an average of 500 articles per month has been repaired.

A specially trained man handles all calls for service

Over one thousand repair parts are kept in stock

The service department in itself consists of a service office, where troubles are diagnosed and minor repairs made, and a more complete shop in the basement. The office is fitted with shelves filled with neatly labeled glass jars of repair parts, giving it an appearance similar to a drug store. Connected with the office by means of a dumb-waiter is the main shop with its work benches and rows of jars and bins where over a thousand repair parts for standard nationally known appliances are kept in stock. The third division consists of two light trucks, each a complete miniature service department in itself. These trucks go out to repair wiring and to service heavier appliances and electrical devices which can not be brought conveniently into the store.

All repair work comes through the service office, no matter from what source. This system eliminates all question as to who is responsible.

Why the Electrical Industry Should Be Interested in the Electric Truck

By K. I. Dazey

Past president, Electric Transportation Association,
San Francisco, California

THE development of electric transportation throughout the East has been highly gratifying. This has not been accomplished, however, solely by the electric truck distributors, but has been aided in each of the cities in which electric transportation has become an important factor, by the central stations, who are mutually interested in the development of this class of business. This assistance has been rendered not only in a sales way, but also through the adoption by such central station companies of electric trucks for their own use wherever they can be economically employed.

The importance of the development of this class of business in California, from the standpoint of the value to central stations, of the battery charging load, can be calculated in direct proportion to the number of trucks of all types used in any congested center of population. It is conservatively estimated that at least 70 per cent of all city hauling can be economically handled by the electric truck. On this basis, and assuming that there are in a given city 5,000 trucks in operation (this figure is simply taken as a basis of the calculation), 70 per cent of this—the number of electric trucks that might be employed—would be 3,500 electric trucks. The average revenue for battery charging is in excess of $10 per month and this fact is borne out by the revenue derived by the New York Edison Company which exceeds $1,000,000 per year through the charging of 5,000 trucks. On the Pacific Coast the rates for electric energy are somewhat lower and on the basis of the $10 per month revenue, the 3,500 potential electric trucks would have a revenue value of $420,000 per annum.

Line extensions are made by central stations on varying bases. Computing this revenue, however, on a three-to-one basis of gross, means an additional load having an investment value of $1,260,000; computed on the basis of five-to-one gross, it has an investment value of $2,100,000.

By reason of the fact that this battery charging load fills up the load valley and does not mean an eventual increase in generating capacity, and further, because this load is handled with a minimum of actual investment, this kind of business becomes all the more attractive and warrants the hearty support of the entire industry. Central stations will continue to enjoy a revenue from the sale of electric trucks in the territory served and manufacturers, dealers and jobbers in electrical appliances of all kinds will also benefit by reason of the fact that the sale of electric trucks means additional business in the following electrical material:

Storage batteries	Ammeters
Motors	Ampere-Hour meters
Generators	Fuses
Regulators	Panels
Circuit breakers	Charging plugs
Voltmeters	Wire
Conduit	Switches
Condulets and boxes	

Unfortunately, the electric truck today is suffering from misapplications of the past but this is also true with respect to other types of automotive equipment, many of which have been discarded and replaced with types more adaptable to the requirements. The electrical fraternity as a whole does not practice what it preaches insofar as its transportation and delivery conditions are concerned. The adoption of electric trucks will encourage others with delivery problems to adopt a form of transportation which would bring on to the lines of the central station companies a highly desirable class of business and would bring to the manufacturers of electrical materials increased output. Those who are interested in the development of electric transportation feel that a service is being rendered to the central station and to manufacturers of electrical goods.

Housekeepers are urged by central station advertising and by jobbers and dealers to electrify the home and the result of this active campaign over a long period of time has materially enhanced the consumption of electric energy in the home. During all of this time, however, the super-electric appliance, the electric truck, has been neglected; the central stations who generate and distribute electric energy do not use their own product in their transportation units and the dealer in household appliances delivers these appliances with a gasoline truck. Those who are vitally interested in the development of electric transportation feel that they are deserving of greater cooperation.

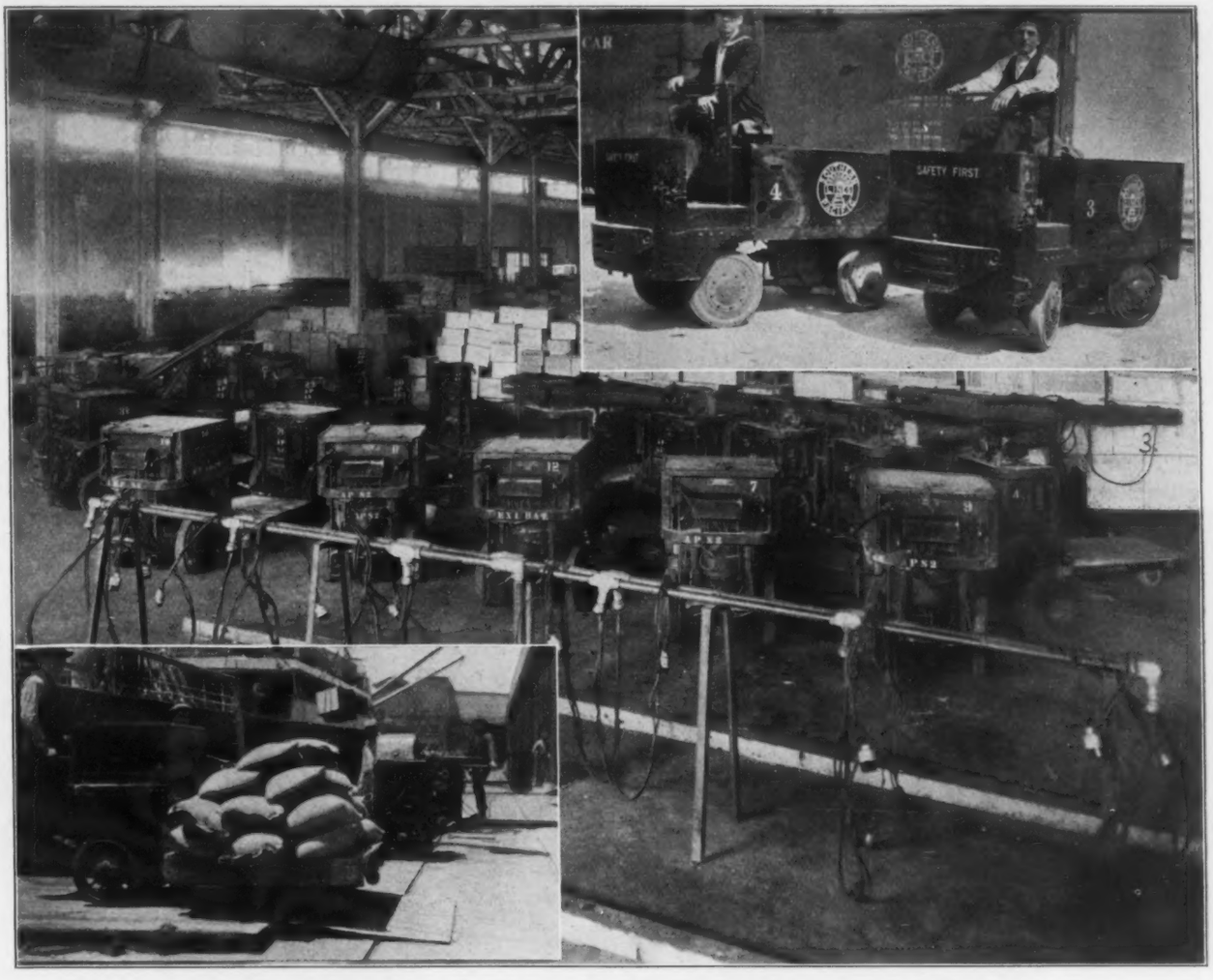
The May, 1924, issue of the N.E.L.A. Bulletin says:

"Use electric trucks yourselves where they are right for you, where they will clearly save you time and money and where they will enable you to advertise electricity. Use electricity—practice what you preach. When this is done, we will not see gas trucks standing by a curb loaded with electric heaters during the fall months, saying, in effect, to the passing public, 'We, the Electric Light and Power Company that serves you, recommend to you the use

of electric heaters for your home, but we advise against the use of electric trucks for your business." And in the summer time instead of equipping a gasoline truck with a stock of electric fans conveying the same sort of message, let those electric fans be placed on an electric truck so that the two-fold message may go forth—electric fans for comfort in your home and office and electric trucks for economy in your deliveries."

It lies within the power of the members of central station organizations who are interested in electrical development to materially assist truck and battery manufacturers and distributors in their work, and at the same time effect a saving in their own transportation costs and further the general cause of electrical development.

Under the laws of the State of California, all rates of public utilities are fixed by the Railroad Commission and volume of business invariably affects the ability of central station companies to retain existing rates under higher operating costs or to reduce rates. The lower the rate for electric energy, the more electrical appliances of every kind and character will be sold, and there is no factor more important in bringing about a closer approximation to a 100 per cent power factor than the battery charging load which fills up the valleys. This cooperation in the selection of transportation equipment should not necessarily be confined to the equipment owned and operated by individual companies. The message of economy of operation can be most effectively transmitted to public drayage firms with the request that they give serious consideration to the electric truck.



Electric trucks and tractors play an important part in handling freight in San Francisco

To a very great extent the attitude of central stations in California and of manufacturers, dealers and jobbers in electrical appliances generally might properly be compared with the story of a man who made a business call upon the proprietor of a restaurant during the noon hour and was advised by the cashier that the said proprietor was "out to lunch."

It is not believed that the electric truck is a cure-all for all transportation requirements but it is contended that a careful study of transportation necessities will disclose a great many usages to which the electric truck could be economically applied.

An Improved Electric Rotary Oil Well Drilling Device

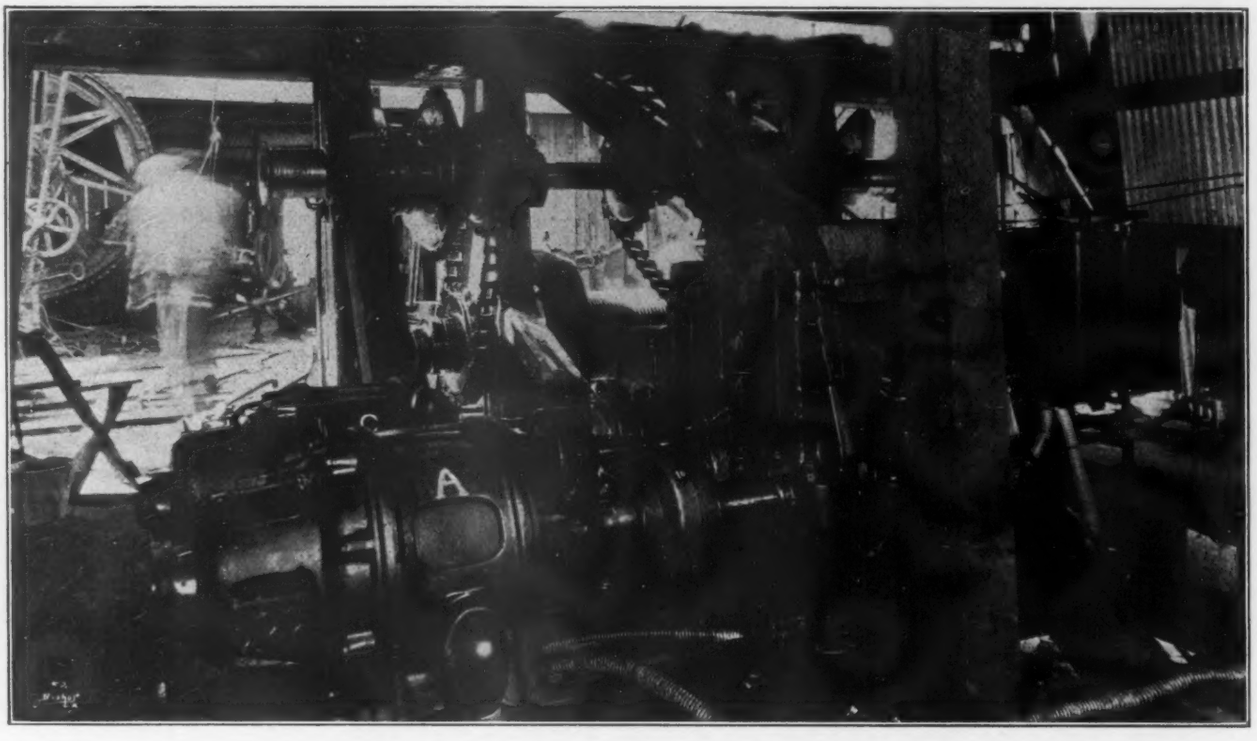
By Lester H. Keim
Engineer, Oil Well Supply Company of California

DURING the past two years there has been designed, built, tested and proved in the fields, an electric drive for drilling oil and gas wells which is known as the Hild differential drive. This electrically-driven device is founded on a new conception of the requirements of successful rotary drilling, i.e., that control of the pressure on the drill bit is essential to quick and satisfactory advance of the hole and, also, the relieving of the pressure and retrieval of the bit are necessary to avoid the common hazards encountered in rotary drilling. Primarily, the drive automatically feeds, and varies the pressure of the drill bit according to the formations as they are encountered. It depends for its functioning on the combination of differential gearing and the inherent characteristics of two induction motors, and is another important step in the electrification of the oil fields. Its main interest to the oil producer is that it will drill a well quicker, more economically, with less hazard, and with less wear and tear on the equipment. These results have been obtained on wells already drilled.

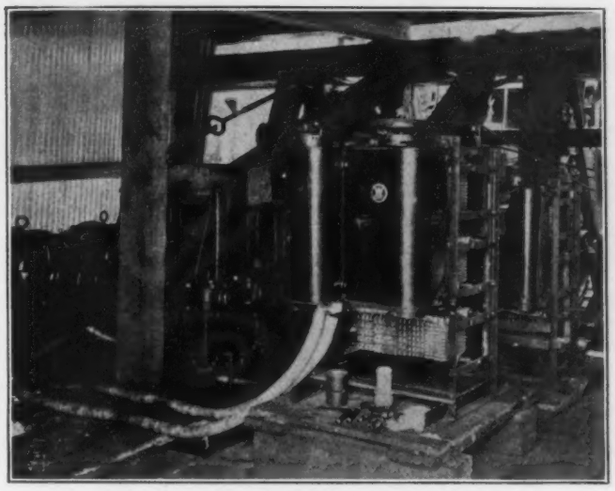
A large proportion of the difficulties in rotary drilling is caused by improper feed to the bit. If the feed of the bit could be made scientifically proportional to the resistance it encounters, if this feed could be regulated automatically and if the resistance encountered unexpectedly caused the bit to actually rise off the bottom, most of the difficulties and delays incidental to present day rotary drilling would be prevented. The speed of drilling could be regulated to the safe limit for each formation as encountered, and the driller would be more free for supervision. The Hild differential drive was developed to secure these much desired results.

This device, invented by Frederick W. Hild of Los Angeles, Calif., was designed, manufactured, tested and perfected jointly by the Oil Well Supply Company, the Westinghouse Electric & Manufacturing Company and the R. D. Nuttall Company. After considerable investigation the Chanslor Candfield Midway Oil Company undertook to drill a well on their Torrance lease in California. This well was successfully completed and the same equipment, with very minor adjustments, is now completing a second well for the same company.

The Hild differential drive consists of a gear box containing a differential gear, to which is connected through flexible couplings, two wound rotor induction motors, which are mounted on a common base. The drilling motor drives one-half of the differential and the rotary table direct through gears and chains;



General view of drawworks, drilling motors and gear unit.



View of apparatus showing location of the control in relation to the gear unit and motors.

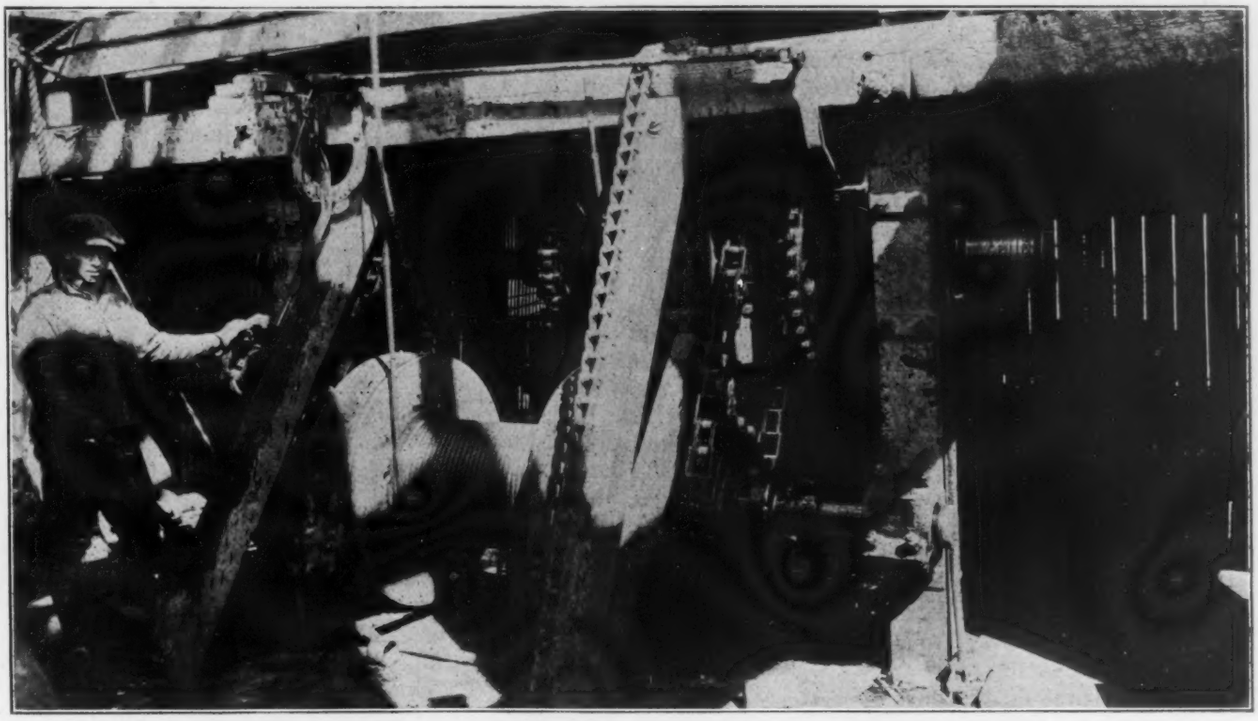
the regulating motor is connected to the other half of the differential. The hoist drum is connected to the central portion, or floating part of the differential gear unit.

The control for the motors driving the differential gear is rope-operated from a small hand wheel on the drawworks post. The indicating meters are located in the corner of the derrick opposite the driller. The motor-driven mud pumps are in their standard position and in the case of a combination rig, the standard 35/15-hp. pumping motor is connected to the band wheel through a reduction gear and chain in the usual location.

In drilling, the motors are operated in opposite directions, the drilling motor being set for a higher speed, causing a downward feed of the bit. The greater the difference in speed between the two motors, the greater the feed either downward or upward. If the load on the drill pipe increases, the additional load slows down the drilling motor, thus reducing the rate of feed. Should the load be sufficient to cause the drilling motor to run slower than the regulating motor, the feed reverses and the bit is raised off bottom. Thus, the device tends to maintain a constant predetermined pressure of the bit on bottom; yet it protects the bit and drill pipe from sudden or excessive strains by raising them up until free of the obstruction, at which point downward progress is again resumed. The rate of feed is adjustable, but the maximum feed is fixed for any particular adjustment. By a simple turn of the hand wheel, reversing the drilling motor, the equipment is used for hoisting with the combined power of both motors available. It was found that the device functions quickly and positively as intended in the different formations encountered.

The Hild differential drive may now be considered as well out of the experimental stage and proved as to theory by practical demonstrations under oil field conditions. The results obtained have shown that this drive can drill a hole faster, that there is considerably less wear and tear on the drilling equipment, that the power and maintenance costs are much lower than with other methods of drive, that the driller has more time for supervision and that a straighter hole can be drilled. The automatic features of this drive greatly reduce the dangers from twist-offs and other troubles causing fishing jobs.

All of these results are of far-reaching importance to the production departments of oil companies, and this development comes at a time when a reduction in production costs is a vital necessity.



View of drawworks showing location of clutch, levers, brake and hand wheel.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

Electrical Construction

By E. Earle Browne

SO-CALLED "old house" wiring is a specialty branch of electrical construction which requires more than average skill on the part of the mechanic if he is to do the job in such a manner that when he has finished the owner is scarcely able to tell he has been there if it were not for the actual outlets, switches, etc., in place on the walls, ceilings and baseboards. In estimating such work there are many points of construction of the building itself which must be taken into consideration. For instance, if the basement is finished with a plastered or other type of ceiling, it will be necessary to remove a strip of the floor above, and again consideration must be given to the construction of the floor; i. e., whether it is single T.&G. pine or rough diagonal beneath a hardwood finished floor. In some cases, as in kitchens and baths, a tile floor may be encountered which would ordinarily mean that it would be cheaper to remove and patch a strip of the basement ceiling finish unless same is in a decorated ball room or billiard room, in which case it would be necessary to install the circuit wires in conduit on the outside of the house and "fish" from the outlet parallel with the floor joists and install in flexible conductors or loom. This also applies to the upper floors as a single T.&G. pine floor on the second floor is much easier to remove and cheaper to reinstall than a hardwood floor. Some houses have a portion of the first floor but one story in height, and often there is not sufficient attic space in this section to allow a man to work in same. This, then, means that the work must be installed in metal moulding or a strip of the finished ceiling removed and then repaired and redecorated. In unfinished basements, when the inspection department requires that wires through joists be protected by being boxed in, it is usually cheaper to install the wiring in rigid or flexible conduit or steel armored conductors. The wider use of the electric air heater, which necessitates separate circuits from panel board to each outlet, would make such a multitude of wires to be protected, if run through the first floor joists, that in some cases it would entail the finishing of almost the entire basement ceiling.

The dividing of the job into classes of work, as was brought out in the Nov. 1 issue of the Journal of Electricity, pages 330-332, applies with equal or with greater importance in "old house" work than in new construction.

The conduit services as detailed in the previous article are all based on a length of 20 ft., but as this is, on the average, too short for an "old house," it is well to measure up each individual job and then to add the extra labor and material to the units above mentioned to obtain the exact selling price for that subdivision of the work.

Assume a 45-ft. three No. 10 wire service:

20 ft. as per unit	$19.74
25 ft. ¾-in. conduit at $17.10 C	4.28
80 ft. No. 10 wire at $26.35 M	2.11
5 ¾-in. straps at $1 C	.05
½ hr. extra labor at $1.50 hr	.75
Total	$26.93

On many houses now being wired the service is made large enough to accommodate a cooking and heating load and in this case the length of run and difficulty of installation must be taken into consideration, as it is of course necessary to run the service conduit on the outside of the building and use an "LB" type of condulet with closed cover and rubber gasket where going through the wall into the service switch. If a workmanlike job is to be made, this part of the installation should be run close under the "overhangs" of the building and down the side of a down-spout or back of some other moulding or offset in the building construction. These large services are never less than 1¼-in. conduit and are often as large as 2-in., which of course means that the labor to make a neat job often amounts to as much as a day and one-half for journeyman and helper or a total selling price for labor only of $30.

The unit of $2.27 each for cutouts is, of course, applicable to the old building, but if there be a large number of 220-volt air and water heater and range circuits this unit would be too small, as the following will show:

Cutout for Air and Water Heaters—

Cabinet	$ 1.00
1 30-amp. cutout, No. 1919 Bryant	.84
2 30-amp. cart. fuses	.35
2 Federal bushings	.18
Labor, ½ hr.	.75
Total	$ 3.12

Cutout for Range—

Cabinet	$ 1.50
1 60-amp. 3-p. cutout, No. 1927 Bryant	3.60
2 60-amp. cart. fuses	.60
2 1-in. locknuts	.06
1 1-in. bushing	.08
1 hr. labor	1.50
Total	$ 7.34

As mentioned above, the air heater circuits are usually easier and therefore cheaper to install in conduit or basement ceiling for the first floor, and for the second floor run to the attic with conduit exposed on the rear or obscured corner of the building, and then through the second floor ceiling joists in knob and bushing to a position over which the outlet is to be installed and fished in loom as usual in the partition or wall.

If several circuits are to be run to the second floor there can, of course, be installed a maximum of four 2-wire circuits in one conduit, which will be better so far as making a neater job on the exterior of the building is concerned. Assuming that there are four heater outlets on the first floor and three on the second floor, a list of material to install the circuits from the cabinet to and including the 20-amp. or larger outlet would be about as follows:

First floor—

40 ft. ½-in. Flexsteel	$ 5.40
60 ft. ¾-in. Flexsteel	10.53
95 ft. No. 12 R. C. wire	1.86
135 ft. No. 10 R. C. wire	3.56
8 ½-in. straps	.07
12 ¾-in. straps	.12
4 ½-in. box connectors	.72
4 ¾-in. box connectors	.96
2 20-amp. polarity receptacles No. 5552	2.78
2 25-amp. polarity receptacles No. 446	5.55
2 20-amp. polarity plates No. 5554	.59
2 25-amp. polarity plates No. 447	7.40
2 20-amp. polarity plugs No. 5553	1.85
2 25-amp. polarity plugs No. 448	5.00
2 switch boxes	.60
2 switch boxes	1.20
Incidentals and inspection	2.00
19 hr. labor	28.50
Total	$78.69

Second floor—

40 ft. 1-in. galv. conduit at $14.60 C	$ 9.84
700 ft. No. 12 R. C. wire at $19.60 M	13.72
8 1-in. straps	.10
4 1-in. locknuts	.12
2 1-in. bushings	.15
1 No. 72171 box ½-in K. O.	.42
1 No. 72 C 2 cover	.14
6 Federal bushings, No. A2	.65
2 1-in. LB condulets	2.52
2 No. 300 covers	.89
2 1-in. gaskets	.58
70 5/16x3-in. bushings	.63
130 No. 5½ knobs	.84
70 ft. ¼-in. loom	3.78
3 1-gang switch boxes	.90
3 No. 5552 Hubbell receptacles	4.18
3 No. 5554 Hubbell plates	.88
3 No. 5553 Hubbell caps	2.78
Incidentals and inspection	2.50
23 hr. labor	34.50
Total	$80.12

In the very special jobs and where heating circuits are to be run, it is preferable to measure up each individual circuit and list the material and labor as shown above.

With all the above points in mind it is a simple matter to use the units for the separate types of outlets making up the usual jobs by taking the units for the new house and adding thereto the extra labor and material necessary due to the obstacles anticipated about as follows:

Ceiling outlet—

As per unit	$ 2.78
3 ft. 7/32-in. loom (extra)	.15
Extra labor (¾ hr.)	1.13
Total	$ 4.06

Bracket outlet—

As per unit	$ 3.22
10 ft. 7/32-in. loom (extra)	.50
Extra labor (1 hr.)	1.50
Total	$ 5.22

Single convenience outlet—

As per unit	$ 4.55
6 ft. 7/32-in. loom (extra)	.30
1 1-gang wood mat (if above baseboard)	.50
Extra labor (¾ hr.)	1.13
Total	$ 6.48

Light circuit—

As per unit	$ 2.61
12 ft. 7/32-in. loom (extra)	.60
Extra labor (1¼ hr.)	1.87
Total	$ 5.08

Single pole flush switch—

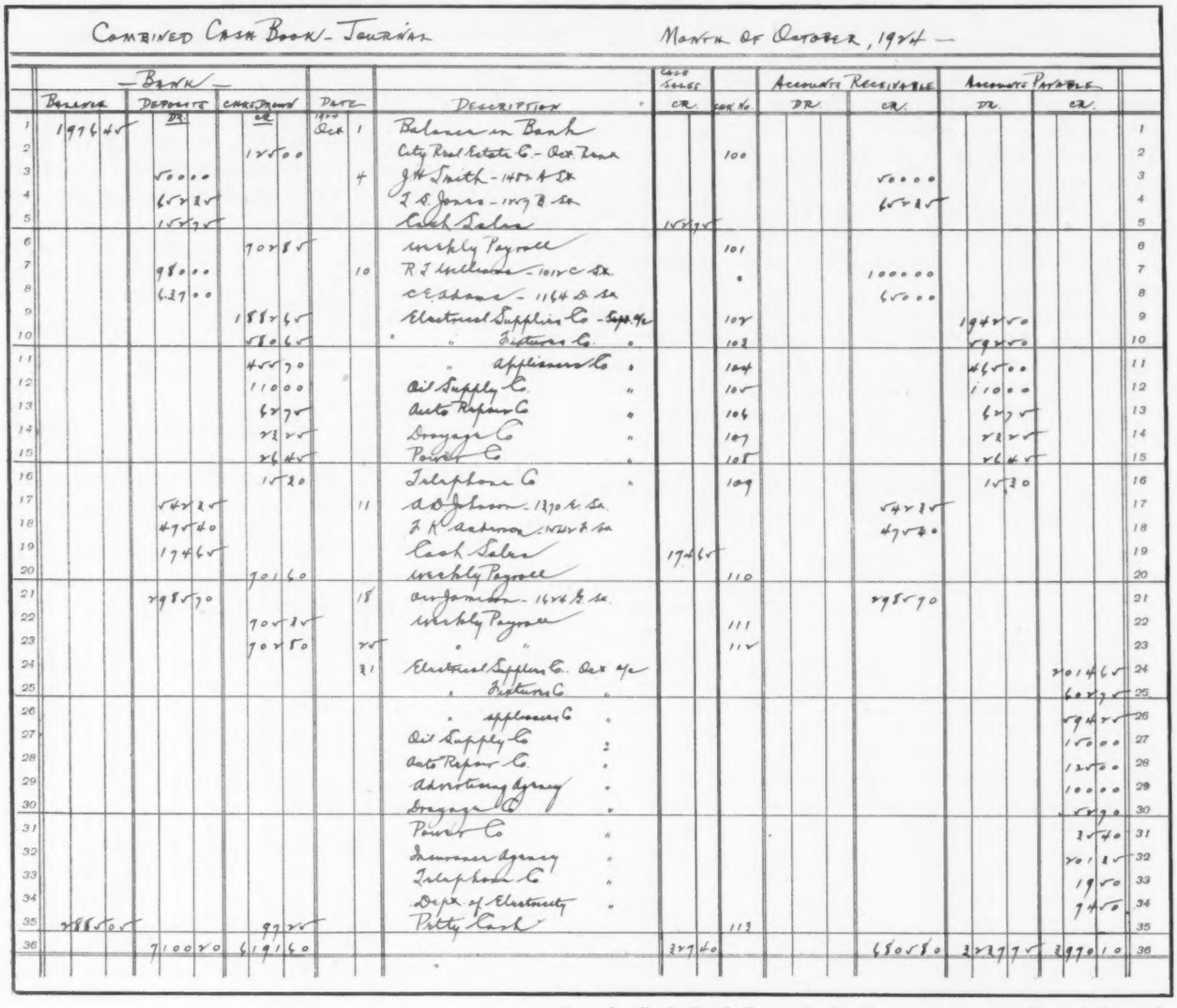
As per unit	$ 4.15
12 ft. 7/32-in. loom (extra)	.60
1 1-gang wood mat	.50
Extra labor (¾ hr.)	1.13
Total	$ 6.38

To all these must be added any flooring, either soft or hardwood, tile, composition, etc., as it is often necessary to call in a contractor from one or more of these trades to replace them properly. The ordinary T. & G. pine floor is easily replaced by the wireman, and therefore the extra expense is merely for a small amount of lumber and his time. The latter is reduced to a minimum, due to the fact that he is on the job, and consequently no traveling forth and back is necessary, as is the case if an outside craftsman has to be called in.

A Practical System of Accounting for Contractor and Dealer

By F. V. Mitchell

IN the April 15, 1924 issue of the Journal of Electricity was presented an illustration of the Combined Cash Book-Journal as applied to the small electrical store. It was also later stated that this book was subject to expansion and could be arranged to provide the necessary departmental segregation required in a more analytical system, similar to the one that it is now being attempted to present in detail.



COMBINED CASH BOOK - JOURNAL — MONTH OF OCTOBER, 19XX —

	Bank Balance	Bank Deposits DR	Bank Checks Drawn CR	Date 19XX	Description	Cash Sales CR	Ledger No.	Accounts Receivable DR	Accounts Receivable CR	Accounts Payable DR	Accounts Payable CR	
1	1976 45			Oct 1	Balance on Bank							1
2			1250 00		City Real Estate Co. - Oct Rent		100					2
3		50000		4	J.H. Smith - 1407 A St.				50000			3
4		6525			J.B. Jones - 1107 B St.				6525			4
5		15975			Cash Sales	15975						5
6			7085		Weekly Payroll		101					6
7		98000		10	R.J. Williams - 1010 C St.				100000			7
8		6270 0			Credit - 1164 D St.				6500			8
9			18865		Electrical Supplies Co. - Sept. A/c		102			19425		9
10			5805		" Fixtures Co. "		103			5925		10
11			4570		" Appliances Co. "		104			4650		11
12			11000		Oil Supply Co. "		105			11000		12
13			675		Auto Repair Co. "		106			675		13
14			215		Drayage Co. "		107			215		14
15			2645		Power Co. "		108			2645		15
16			1520		Telephone Co. "		109			1520		16
17		5425		11	A.D. Johnson - 1210 K St.				5425			17
18		4740			J.K. Jackson - 1520 B St.				4740			18
19		1746			Cash Sales	1746						19
20			7060		Weekly Payroll		110					20
21		29870		18	Benjamin - 1646 B St.				29870			21
22			7085		Weekly Payroll		111					22
23			7050	"	" "		112					23
24				21	Electrical Supplies Co. Oct a/c						7014	24
25					" Fixtures Co. "						6075	25
26					" Appliances Co. "						5945	26
27					Oil Supply Co. "						1500 0	27
28					Auto Repair Co. "						1250 0	28
29					Advertising Agency "						10000	29
30					Drayage Co. "						5290	30
31					Power Co. "						2540	31
32					Insurance Agency "						7012	32
33					Telephone Co. "						1950	33
34					Dept. of Electricity "						7450	34
35	2885 05		9925		Petty Cash		113					35
36		71005 0	61916 0			3740			65058 0	23775	29701 0	36

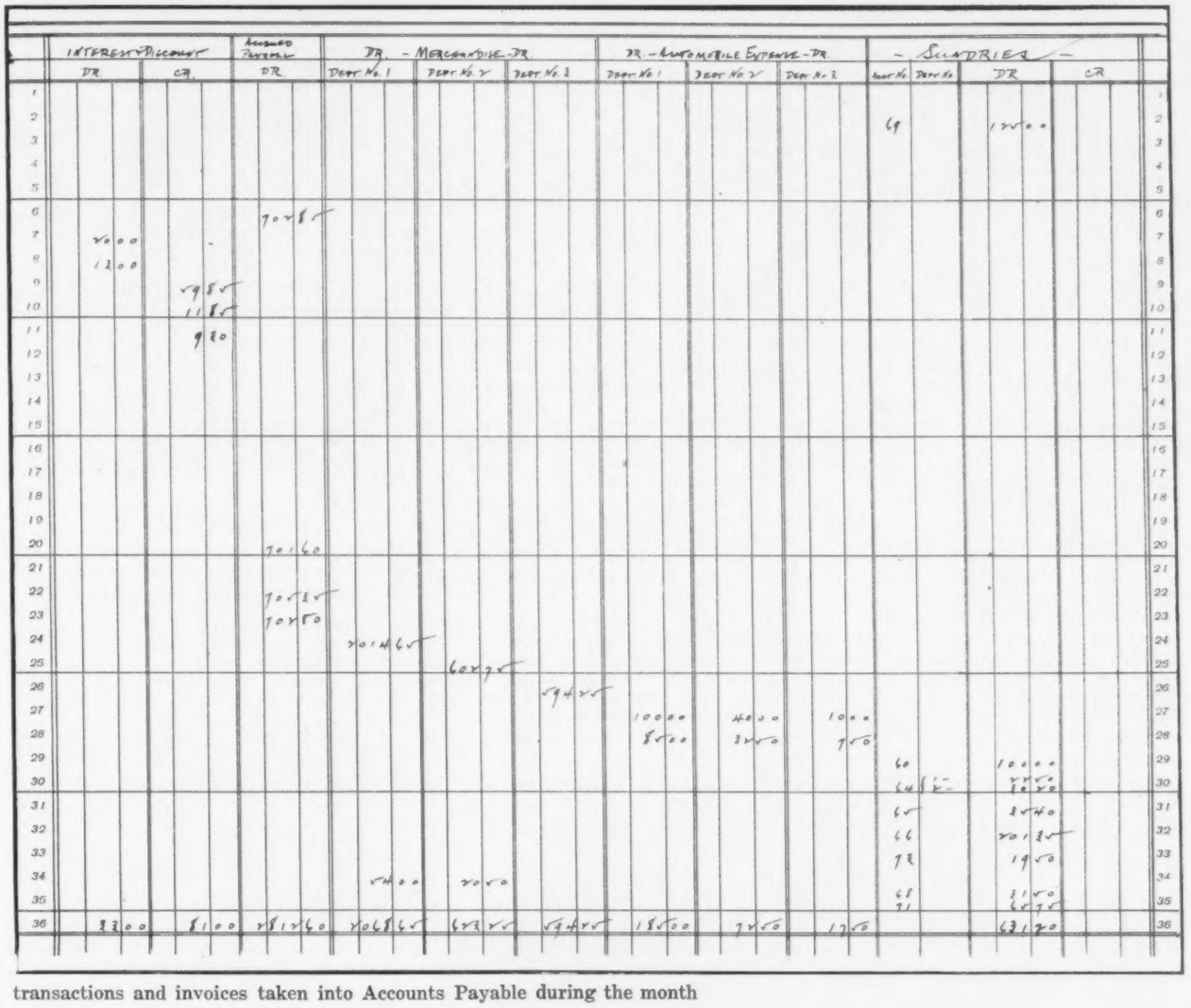
Sample Cash Book-Journal showing use in recording daily cash

The sample page contained herein illustrates the use of the Combined Cash Book-Journal in the recording of the daily cash transactions and the invoices taken into Accounts Payable during the month, as applied to the analytical method. It will be noted that the Merchandise Account is subdivided into separate columns for the three departments, and the Automobile Expense Account also. It is possible through the use of fly-leaves to provide separate columns for as many other expense accounts as desired, but the form presented is sufficient for illustration purposes.

The different columns are totaled at the end of the month after all the invoices covering purchases and expenses for that month have been entered, and the total of the debit columns should equal the total of the credit columns. These totals should be posted

to the debit and credit, respectively, of the proper accounts in the General Ledger, with the exception of the Sundries Columns. The amounts appearing in the Sundries Columns are posted in detail to the accounts in the General Ledger, as specified by the number in the account number column. A Department No. column is provided to be used whenever possible to allocate the expense item direct to a department. The columns are totaled and posted at this point, as all the other entries to be made after the end of the month are of an entirely different character and are obtained from various sources. The other entries referred to are termed Monthly Closing Entries, and only one Dr. and Cr. column is necessary as the the total debits and credits are posted to the Accounts Payable Controlling Account in the General Ledger and it enables the balancing of the individual ledger with the control without having to wait for all the closing entries to be made, which do not affect the account in any way.

As will be noted, no charges are entered in the Accounts Receivable Dr. column in the Combined Cash Book-Journal daily as it will be recalled all charges for wiring and fixtures are entered through unfinished contracts account, and it would be too laborious to enter each one of these separately in this book. It would result in the use of many additional pages during the month and the totaling across of all



transactions and invoices taken into Accounts Payable during the month

amounts are posted in detail to the proper accounts in the General Ledger.

Another particuar reason for ruling off the book at this point is that it would entail considerable unnecessary work to carry the totals of all the columns forward on each page of the monthly closing entries, whereas only the Sundries Dr. and Cr. columns are used on the latter pages. Also, by so doing, the columns on each page. To facilitate the entry of these charges, a Sales Summary is used and a journal entry made of the totals for the month in the monthly closing entries referred to above. The Sales Summary in this set will be presented in the Dec. 1, 1924 issue of the Journal of Electricity and the monthly closing entries will be taken up step by step.

Low Head Pumping with Small Vertical Screw Pump

Electricity Has Reduced Pumping Costs and Has Made Possible Agriculture on Lands Producing $1,000 Per Acre

By I. H. SMITH
Engineer, Reclamation District No. 999

The year 1917 marked the closing of levees around one of the largest and most fertile tracts of river bottom land in the Sacramento Valley. This tract is now known as the Holland Reclamation District, about 14 miles south of the City of Sacramento, and contains approximately 26,000 acres.

Previous to the construction of the levees, water covered most of this tract the year around, and tules ten feet high grew in a dense mass. Here and there were lakes. varying in area from the size of a pond to 400 acres. When the levees were closed and the water drained into the ditches and canals, some of the deeper lakes still remained.

One of the remarkable things about the Holland Reclamation was the production of a bumper crop the first year on raw, rough tule ground. Old-timers said that the ground would be sour, or too full of tule roots to permit the planting of seed. However, practically all of the land was brought immediately into production; even the largest lake bottom was soon doing its share. This lake is still known as Big Lake, though it has long since ceased being a lake in the true sense.

The main drainage canal of Reclamation District No. 999 passes through Big Lake, the excavated material forming levees on each side. During the summer months, water is syphoned into this canal from the river outside the District, so as to provide irrigation water for the farmers. The water level in the canal, during this period, stands about 3 ft. above the land in the lake, and water seeps slowly through the canal banks into ditches paralleling the canal. This seepage water is pumped back into the canal, thus keeping the lake bottom dry enough for farming.

Until 1923, the gas engine was the only available source of power in the tract. In some respects this type of motive power is desirable, but for continuous pumping service, the cost of a necessary attendant is prohibitive. In the spring of 1923, a power line was built to serve the pumps in Big Lake. About the same time vertical pumps with a screw type runner were developed and brought on the market. The runner of this type of pump is something like an electric fan, drawing the water into the lower end of a vertical tube lifting it upwards, and out through the elbow near the top. This type of pump requires no priming, is usually designed for lifts of only 5 to 8 ft., and is so proportioned as to have low velocities of water in all sections, with a consequent high efficiency. A 5-hp. motor will deliver 1,500 to 1,800 gallons per minute under the lifts mentioned. The ordinary 8-in. centrifugal pump, operating under conditions above outlined, would require a 10-hp. motor. A float switch acting through a General Electric Company magnetic switch will throw the pump on or off, holding the water level between any desired limits. There is no vibration to the unit, so it is not even fastened to the platform over the sump.

In one season of operation, the power cost of one of these plants does not exceed $150. The labor or attendance bill is nothing, as any laborer about the place can oil it twice a week. A gas engine outfit doing the work less satisfactorily cost in one season about $1,000, for labor and fuel. The illustration shows a 20-hp. gas engine and a 10-in. screw pump, after the gas engine outfit "fell down" on the job. The screw pump and its discharge pipe are both below the platform out of sight. Since the picture was taken, a portable "Calco" corrugated iron house was placed over this plant and the controls mounted therein.

Three such units as the one shown are easily taking care of 450 acres in the Holland Tract. The cost of draining is less than it would cost to irrigate similar land. Actual sale of such lake bottom brought $450 per acre, due to its great fertility. These pumps are now being manufactured locally and can be delivered on reasonable notice. Low cost of both plant and installation makes the investment much lower than for the usual centrifugal pumps.

After reclamation the land will produce annually from $150 an acre to as high as $1,000 or more. The Holland Tract is noted for its adequate drainage and irrigation facilities, as well as for consistent large crops. The tract is also one of the most economical reclamations in the valley. Proper application of modern machinery has been a large factor in this success.

Installation of small vertical screw pump electrically driven, for reclaiming land on Holland Reclamation District

Accounting Problem Questions Answered by Expert

The Journal of Electricity has made arrangements with F. V. Mitchell, public accountant of San Francisco, to answer, in these columns, such questions as may be asked on accounting. All readers are invited to forward their inquiries to The Editors, Journal of Electricity. The answers will be published as soon as possible following the receipt of the inquiry.

Question:

What is the effect of a 15 per cent discount on material selling price on a $1,000 wiring job?

Answer:

The effect is practically the elimination of the net profit on the job, as follows:

	Full Price	15% Off Material
Selling Price	$1,000	$910
Material Costs	400	400
Labor Costs	266	266
Total Material & Labor Costs	$ 666	$666
Gross Profit	334	244
Overhead (33-1/3% on costs)	222	222
Net Profit,	$112—11%	$22—2½%

Valley Society Prepares for Home Lighting Campaign

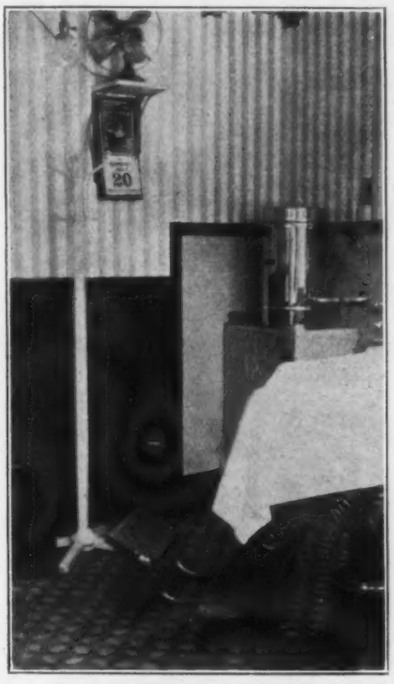
The Sacramento Valley Electrical Society held its regular monthly meeting at the Hotel Senator, Sacramento, Calif., recently and officers for the coming year were nominated. The election will be held at the next meeting.

Victor Hartley, executive secretary of the California Electrical Cooperative Campaign, discussed the Better Home Lighting Activity. He announced that Roy N. Phelan, secretary-treasurer of the Electrical Contractors' and Dealers' Association of Sacramento, had been appointed chairman of District Five, comprising Sacramento, Solano and Yolo Counties. The Sacramento society endorsed the home lighting campaign and will sponsor it in the Sacramento Valley. The district chairman announced the appointment of the following committees: district advertising—Ralph Hunting, Roy Dryer, Arthur Peck, "Steve" Gamble and W. J. Delehanty; district publicity—J. C. Hobrecht, Al Scott and R. J. Finchley; school relations—George B. Sanford, chairman; club contact—Ed. Florence, chairman. J. W. Anderson and R. T. Stephens were made district vice-chairmen.

S. F. Worswick, sales manager of the San Francisco branch of the Taylor Instrument Company, addressed the meeting on the manufacture and use of thermometers.

Electric Water Heater Saves Cash For Sacramento Barber

Barbers are finding that it is not only economically possible, but that it is as cheap or cheaper to heat water by electricity, rather than by other fuels. This has been the experience of George K. Davis, 2404 Second Avenue, Sacramento, Calif., who has had a 2-gal., 110-volt Wesix special automatic electric water heater installed in his one-chair shop since March of this year. Previous to



Electric water heater installed in Sacramento, Calif., barber shop

the installation of the electric heater, Mr. Davis paid an average of $4 per month for gas to heat water only. His present bill for heating water, operating an electric fan, and operating his tools averages from $2 to $2.50 per month. He estimates the water heater is only costing $1 per month.

The performance has been beyond his expectations and the heater has been entirely satisfactory. Mr. Davis is a real booster and never hesitates to call attention to the heater, which is conspicuously located in his shop, as shown in the accompanying picture. Mr. Davis also fully appreciates the convenience, the elimination of excess heat and obnoxious odors, and the other advantages of electric water heating.

Through the sale of electric water heaters to barber shops, beauty parlors and other similar industries there is opened to electrical contractor-dealers another avenue of profit.

Electragists Distribute Report on Armored Cable Wiring

The Association of Electragists, International, is distributing to members a report of results arrived at so far in an investigation of armored cable wiring which is being made by Arthur L. Abbott, technical director of the association. This is in the form of a twelve-page booklet entitled "Preliminary Report on Armored Cable Wiring Labor Costs and Installation Methods."

It is the intention that this work shall continue for a number of months, but in view of the facts that no estimating data of this nature have ever been published, and that the ease of installation and low cost of this kind of wiring are not well understood in some localities, it was deemed advisable to publish a preliminary report at this time.

The section dealing with Materials and Installation Methods describes the work in considerable detail. It is illustrated with cuts of typical ceiling outlet boxes, sketches of methods of installing switch boxes, and a sketch and half-tone showing clearly how a skilled workman cuts the cable.

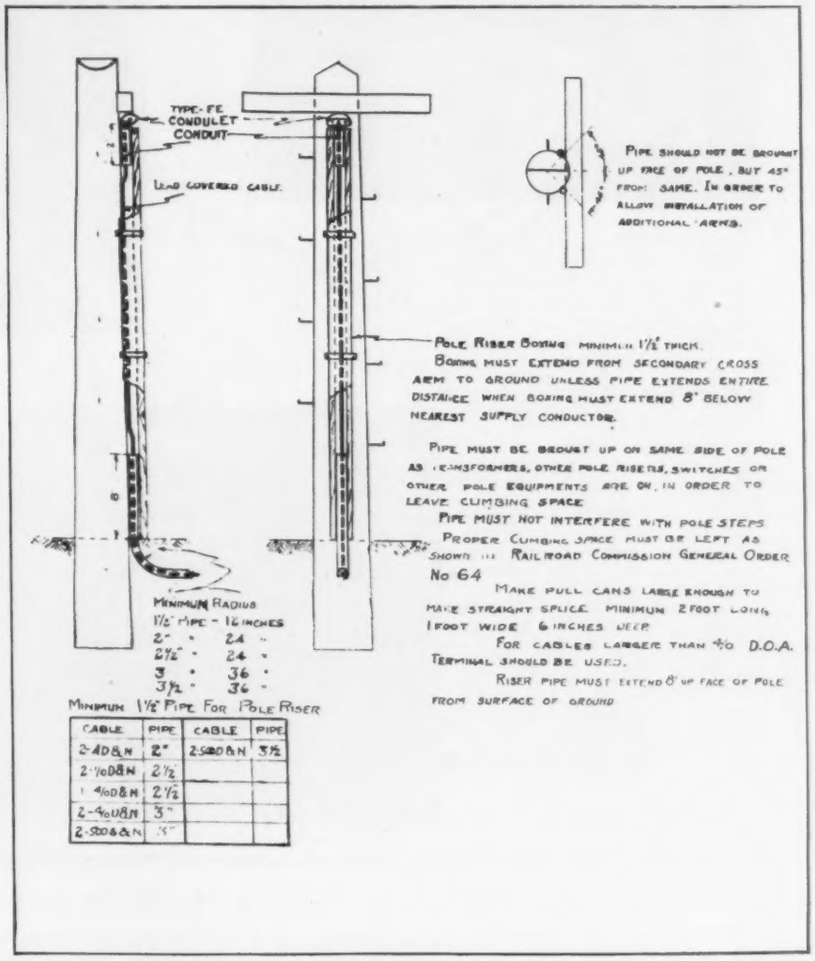
Under the heading of "Handling the Job" the contractor is advised to make a layout of some kind for every job; the importance of an adequate supply of tools and materials and of proper supervision is pointed out; and the actual method of procedure on the job is briefly described.

The contractor is urged to keep certain simple cost records of his jobs, so that he can check the labor units and if necessary modify them to fit his own particular conditions, both as to the class of work done and the efficiency of the labor he employs.

The methods of estimating work in the various classes of buildings are fully covered. Standard times are tabulated for each class of building. It is advised that labor on the outlet boxes and cable in common new residences, old houses, and apartment buildings be figured by means of a time allowance per outlet. In unusually large and fine residences, the time allowance per outlet is increased to cover the more careful work required, extra time is to be added for all outlets occurring in paneled work, and a job factor is introduced to cover lost time occasioned by delays in the progress of the building. On account of variations in the quantity of cable per outlet in a building of the commercial type, it is necessary in such buildings to apply labor units to both the outlet boxes and the cable.

Standard Specifications Prepared for Pole Riser Service

With the growth in the demand for underground entrance services for residences and other buildings not located in a district served by underground distribution it has become necessary to standardize on the type of construction used in leading in the service wires. For this reason, and to provide the best possible type of entrance service from overhead to underground at the most reasonable cost, the engineering department of the Pacific Gas and Electric Company has issued a standard specification for this work and has prepared a blue print covering the requirements. This blue print, which is reproduced herewith, is distributed gratis by the company to electrical contractors and dealers and embraces all specifications embodied in this class of work.


TYPE-FE CONDULET CONDUIT
LEAD COVERED CABLE
PIPE SHOULD NOT BE BROUGHT UP FACE OF POLE, BUT 45° FROM SAME. IN ORDER TO ALLOW INSTALLATION OF ADDITIONAL ARMS.
POLE RISER BOXING MINIMUM 1½" THICK.
BOXING MUST EXTEND FROM SECONDARY CROSS ARM TO GROUND UNLESS PIPE EXTENDS ENTIRE DISTANCE WHEN BOXING MUST EXTEND 8' BELOW NEAREST SUPPLY CONDUCTOR.
PIPE MUST BE BROUGHT UP ON SAME SIDE OF POLE AS TRANSFORMERS, OTHER POLE RISERS, SWITCHES OR OTHER POLE EQUIPMENTS ARE ON, IN ORDER TO LEAVE CLIMBING SPACE
PIPE MUST NOT INTERFERE WITH POLE STEPS
PROPER CLIMBING SPACE MUST BE LEFT AS SHOWN IN RAILROAD COMMISSION GENERAL ORDER No 64
MAKE PULL CANS LARGE ENOUGH TO MAKE STRAIGHT SPLICE. MINIMUM 2 FOOT LONG 1 FOOT WIDE 6 INCHES DEEP
FOR CABLES LARGER THAN 4/0 D.O.A. TERMINAL SHOULD BE USED.
RISER PIPE MUST EXTEND 8' UP FACE OF POLE FROM SURFACE OF GROUND
MINIMUM RADIUS
1½" PIPE - 16 INCHES
2" " 24 "
2½" " 24 "
3" " 36 "
3½" " 36 "
MINIMUM 1½" PIPE FOR POLE RISER

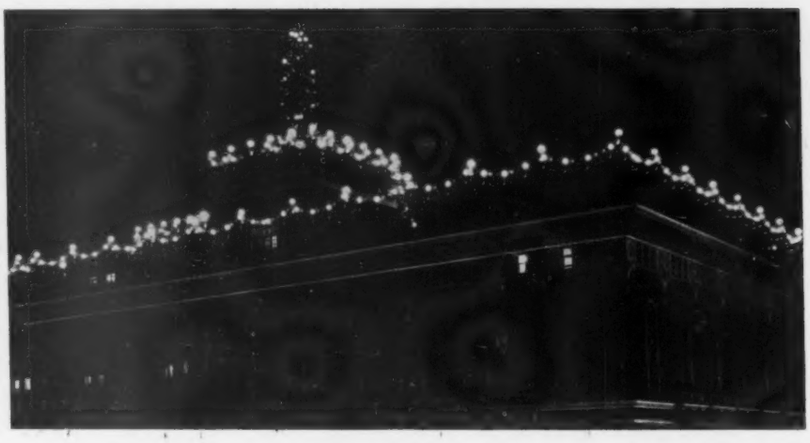
CABLE	PIPE	CABLE	PIPE
2-4D&N	2"	2-500D&N	3½
2-1/0D&N	2½		
1-4/0D&N	2½		
2-4/0U&N	3"		
2-500&N	3"		

Diagram of standard pole riser service as prepared by Pacific Gas and Electric Company

JOBBER, DEALER AND SALES AGENT

Ideas that Sold Electrical Christmas Gifts

ATTRACTING attention to the advantages of electricity is the function of all advertising done by the electrical industry. Throughout the year there is no time when this advertising creates more sales than it does at Christmas. Window displays and newspaper advertisements do much to increase the volume of sales, for every pedestrian and reader is prepared to purchase gifts for family or friend. Giving the 1923 shopper a wide selection, the Electric Furnishing Company, Spokane, used its window to suggest electrical gifts for everyone. The Public Service Company of Colorado used one of its windows in Denver to feature an electric vacuum cleaner, suggesting that it would be an acceptable present for any housewife. Las year the sale of Christmas tree sets was stimulated in Spokane by the artistically illuminated Davenport Hotel. The Electric Furnishing Company will be in charge of illuminating the hotel exterior again this year.



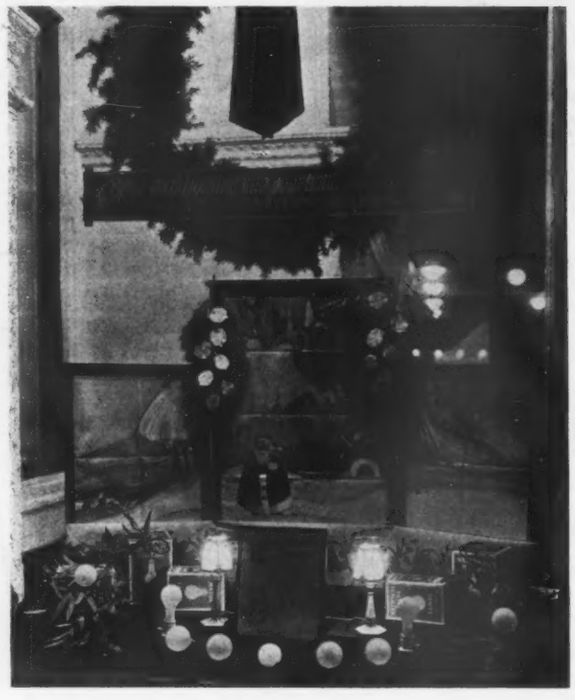
"Give Something Electrical"

Thor
Thor
Make this a
Practical Christmas
GIVE USEFUL PRESENTS
What gift would be appreciated more than an Electric Appliance that LIGHTENS WOMAN'S WORK?
ELECTRICAL SUGGESTIONS FOR CHRISTMAS:
PERCOLATORS
TOASTERS
We have a full line.
WAFFLE IRONS
HEATING PADS
READING LAMPS
READING IRONS
CURLING IRONS
FLAT IRONS
ELECTRIC RANGES
AIR HEATERS
CHAFING DISHES
ELECTRIC APPLIANCE COMPANY
Electrical Gifts Are Practical Gifts
Buy Standard Approved
Electrical Appliances
ONLY A FEW DAYS remain to do your Christmas shopping! But you need only a few minutes to purchase the one gift which will please wife, mother or sister most. ELECTRICAL APPLIANCES are gifts which home-loving women fully appreciate. But protect yourself and recipient by purchasing standard approved appliances—appliances which are guaranteed by both manufacturers and Electragists—those dealers who are members of the Electrical Co-Operative League.
If uncertain as to what to give, why not secure an Electrical Co-Operative League Gift Certificate from any dealer-member?
Look for this Emblem! It is Your Protection! Consult the Electragist who displays it. He is qualified to Serve
Electrical Co-Operative League
Champa 7273
LETTERS TO
Santa
Claus
Dear Santa:
I have an admirer who spends his time raving about Elsie Ferguson. Have got my hair so it looks like hers, but there is still something the matter with my face.
I wonder if an electric vibrator would help?
Distractedly,
DAISY B.
THE ELECTRIC VIBRATOR STIMULATES CIRCULATION
See Display in Our Showroom
The Denver Gas & El. Light Company
A Shopping List of Worth-While Gifts
Electrical Xmas Gifts
Worth-while Christmas Presents in wide variety, at Lowest Prices, on Liberal Terms.
Davis-Shaw Furniture Co.
LETTERS TO
Santa
Claus
Dear Santa:
Somehow our living room looks as formal as a public library.
I have a bunch that a nice floor lamp would take the curse off and make the room look more as if people lived in it. Hopefully,
ELIZABETH B.
Why not spend part of your Christmas money beautifying your home? Just one little lamp, cleverly placed, will work wonders by adding to it a touch of distinction, color and beauty.
We are showing a great number of beautiful lamps, in many cases exclusive with us, and are smartly up-to-date.
You might also take a look at our
ELECTRIC
Irons
Toasters
Curling Irons
Heating Pads
Chafing Dishes
Vibrators
Heating Pads
Sewing Machines
Ironing Machines
Washing Machines
Vacuum Cleaners
Waffle Irons
Xmas Tree Outfits
The Denver Gas and Electric Light Company
Modernize the Home
The Premier
ELECTRIC CLEANER
"Dad! buy Here HOOVER
The Denver Gas & Electric Light Company
4 Days Until Christmas!
Electrical Appliances Now
The time is growing short. Visit an Electragist—now—and select your Electrical Appliance—the Supreme Christmas gift.
For mother, wife, sister and other home-loving women, no gift could be more acceptable than Electrical Appliances. They are gifts which are used every day in the year.
Gift Certificates
For the convenience of those who are uncertain which Electrical Appliance would be most acceptable, this GIFT CERTIFICATE will be issued and accepted, by Electragists in any amount you designate. This certificate permits recipients to select their own gifts.
ELECTRICAL CO-OPERATIVE LEAGUE
Make This an Electrical Christmas
Electrical Co-operative League of Denver

Newspaper advertisements calling attention to the suitability of electrical appliances as Christmas gifts continue to produce results. In years past these advertisements have been run by manufacturers, jobbers, dealers and cooperative organizations with equal success. The gift certificates, at the lower right, also were effective.

"Give Something Electrical"

WITH the advent of Christmas comes the thought of clear cold days and frosty nights with the ground and trees covered with fleecy snow. Simultaneously comes the desire to give to one's friends. By associating electrical Christmas gifts with the customary Christmas season symbols, Allen B. Spencer of the Public Service Company of Colorado forcefully advised the citizens of Denver to "Give Something Electrical." This window display illustrated at the right, with its neatly tied packages of electrical devices, suggested their purchase for Christmas presents and when the window shopper had been attracted into the showroom courteous clerks completed the sale.



CHRISTMAS season window displays adapt themselves not only to the electric appliances that the average customer considers primarily suitable as gifts, but also to the presentation of the more common standard articles that are purchased throughout the year. The prospective customer in associating the electrical dealer with the Christmas season naturally expects to find his place of business stocked with a large assortment of electrical appliances such as toasters, irons, vacuum cleaners, percolators and similar devices. In general, the average shopper does not think of Christmas as the time to purchase electric lamps. The proper lighting of the home is not considered unless the electrical industry, by well directed advertisements, attractive window displays and forceful sales arguments directs attention to the importance of a well lighted home during the holiday season. To stimulate better home illumination in Denver, Colo., the Public Service Company of Colorado during the Christmas season last year devoted one of its main display windows to electric lamps. Appropriate holiday decorations and colorful backgrounds were used to tie the display in with the season, and the show cards carried out the same idea. The interest created by this display proved that the electrical dealer can successfully use his windows to stimulate the sales of any merchandise.

SANTA CLAUS, the giver of Christmas presents, dominated the 1923 Christmas window display of the Field Electrical Company of San Bernardino, Calif. George L. Black, who decorated the window, in addition to showing Santa Claus with his collection of electrical appliances ready to go down the chimney from the house top, told the window shopper to whom he could give each article. One of the important factors in favor of this display was the simplicity of the decoration scheme. This focused the prospective customer's attention upon the appliances which were so effectively set off by the sloping background furnished by the snow-covered top of the miniature residence.

"Give Something Electrical"

ELECTRICAL dealers of San Jose, Calif., proved the effectiveness of the cooperative electrical exhibition when they succeeded in attracting 10 per cent of the population to the display, presented prior to Christmas last year. Attractive billboards have been used to good advantage, particularly when tied in with attractive window displays featuring electrical Christmas gifts. The Washington Water Power Company used the billboard, shown at the left, and a Western dealer trimmed the window at the right.

INDUSTRIAL NEWS

California Water and Power Act Overwhelmingly Defeated

For the second time in two years the voters of California have registered their disapproval of the Water and Power Act. Incomplete unofficial returns as this issue goes to press show that the measure was defeated by a majority in excess of 400,000 votes. A total of 7,053 precincts out of 7,467 for the state gave the vote as 297,620 in favor of the Act and 696,216 against it. This compares with 243,604 for the measure and 597,453 against it in 1922.

The measure received bare majorities in three counties—Sacramento, Plumas and Fresno. The affirmative vote in Fresno and Sacramento counties may be ascribed to the advocacy of the measure and the La Follette candidacy by the two powerful newspapers published in the cities of Sacramento and Fresno. The heaviest majorities against the Act were recorded in the southern section of the state. In Los Angeles County the vote was three to one against the bill, while in other counties even higher majorities were rolled up.

In 1922 the vote against the Water and Power Act was approximately two and one-half to one. If the same ratio holds in the official count as is shown in the count to date for 1924, the measure will be defeated by a slightly less margin. This is partly due to efforts of the La Follette advocates, who tied the Water and Power Act into their campaign.

The unofficial count as compiled by the Associated Press and furnished to the Journal of Electricity through the courtesy of that organization follows:

VOTE ON AMENDMENT NO. 16—1924

County	Total No. Precincts	No. Precincts Reporting	Yes	No
Alameda	558	558	31,925	65,289
Alpine	5	5	5	32
Amador	30	30	474	1,287
Butte	118	110	3,089	4,130
Caalveras	35	30	602	1,075
Colusa	28	28	557	1,797
Contra Costa	115	115	4,712	9,546
Del Norte	11	11	210	363
El Dorado	39	37	1,058	1,337
Fresno	232	189	9,209	7,449
Glenn	34	34	1,097	1,960
Humboldt	86	75	254	7,054
Imperial	55	51	1,646	2,907
Inyo	29	25	402	1,041
Kern	158	109	2,727	6,601
Kings	45	45	964	3,819
Lake	24	24	446	1,202
Lassen	34	19	296	688
Los Angeles	1,906	1,896	90,560	280,670
Madera	46	44	1,199	1,643
Marin	69	69	2,750	6,245
Mariposa	21	19	213	416
Mendocino	90	79	967	3,108
Merced	61	61	1,731	3,820
Modoc	27	23	224	901
Mono	8	5	42	89
Monterey	73	58	1,047	3,622
Napa	51	51	1,176	4,276
Nevada	42	42	1,060	2,211
Orange	136	136	4,988	18,945
Placer	60	.....	.....	.....
Plumas	29	29	573	569
Riverside	115	115	2,956	10,447
Sacramento	202	202	14,789	13,477
San Benito	29	29	530	1,306
San Bernardino	204	193	4,327	17,265
San Diego	274	167	8,654	13,251
San Francisco	882	882	49,157	76,644
San Joaquin	171	171	5,715	13,069
San Luis Obispo	54	52	1,597	4,872
San Mateo	108	108	4,229	7,954
Santa Barbara	70	70	2,307	8,584
Santa Clara	196	196	10,057	21,005
Santa Cruz	74	74	2,117	4,729
Shasta	55	39	1,046	2,478
Sierra	17	17	206	321
Siskiyou	63	36	1,148	2,075
Solano	58	58	3,474	5,289
Sonoma	124	118	3,198	11,436
Stanislaus	106	106	3,245	8,973
Sutter	30	30	1,040	1,921
Tehama	50	50	1,350	2,389
Trinity	26	17	162	386
Tulare	140	138	4,949	11,107
Tuolumne	34	33	1,061	1,513
Ventura	60	60	1,352	6,144
Yolo	36	36	1,626	3,165
Yuba	34	34	1,125	2,182
Totals	7,467	7,053	297,620	696,216

The official vote for 1922 by counties follows:

VOTE ON WATER AND POWER ACT—1922

County	Yes	No	Majority No
Alameda	26,332	60,903	34,571
Alpine	6	42	36
Amador	455	1,536	1,081
Butte	2,414	6,114	3,400
Calaveras	681	1,430	749
Colusa	550	2,196	1,646
Contra Costa	4,011	9,693	5,682
Del Norte	116	486	370
El Dorado	857	1,489	632
Fresno	8,669	21,108	12,439
Glenn	973	2,688	1,715
Humboldt	1,830	6,712	4,882
Imperial	1,729	3,351	1,622
Inyo	824	1,429	605
Kern	4,731	11,217	6,486
Kings	662	4,782	4,120
Lake	520	977	457
Lassen	435	1,428	993
Los Angeles	54,022	160,330	106,308
Madera	1,391	2,073	682
Marin	2,299	5,849	3,550
Mariposa	219	657	438
Mendocino	813	4,321	3,508
Merced	1,552	3,915	2,363
Modoc	120	1,390	1,270
Mono	83	180	97
Monterey	1,483	4,973	3,490
Napa	1,295	4,592	3,297
Nevada	961	2,158	1,197
Orange	2,902	14,798	11,896
Placer	2,140	2,997	857
Plumas	417	680	263
Riverside	2,960	9,363	6,403
Sacramento	11,924	13,233	13,009
San Benito	688	1,846	1,158
San Bernardino	3,985	13,909	10,924
San Diego	10,232	20,047	9,815
San Francisco	42,737	74,996	32,259
San Joaquin	5,390	12,977	7,587
San Luis Obispo	1,464	4,647	3,383
San Mateo	3,319	7,233	3,914
Santa Barbara	1,598	6,959	3,997
Santa Clara	7,281	18,243	10,962
Santa Cruz	1,850	5,703	3,853
Shasta	1,287	3,333	2,046
Sierra	136	365	229
Siskiyou	2,021	2,907	886
Solano	3,234	6,303	3,069
Sonoma	2,685	11,299	8,614
Stanislaus	4,444	7,352	2,908
Sutter	747	1,867	1,120
Tehama	1,357	2,296	939
Trinity	231	690	459
Tulare	3,787	12,515	8,728
Tuolumne	1,160	1,666	506
Ventura	1,660	5,901	4,841
Yolo	1,546	3,249	1,703
Yuba	986	2,060	1,047
Totals	243,604	597,453	353,849

The official count by counties for 1924 will be published in an early issue of the Journal of Electricity.

Bone Free Power Bill Defeated by 66,000 Majority

Unofficial returns compiled by a Seattle, Wash., newspaper, complete except for two small counties, indicate that initiative No. 52, the so-called Bone Free Power Bill, has failed by a majority of 66,000 votes. The bill carried in three counties—Franklin, Kitsap and Stevens—with a combined affirmative majority of about 1,000, while in many of the other counties a vote of four, five or six to one was scored against it.

Pierce and King Counties, the home counties of Tacoma and Seattle respectively, where the bill was expected to receive its most substantial support, returned negative majorities of over 2,000 each. The vote by counties follows:

	Yes	No
Adams	218	1,145
Asotin	366	1,384
Benton	339	510
Chelan	1,365	5,214
Clallam	1,352	2,092
Clarke	1,345	5,908
Columbia	234	1,428
Cowlitz	1,007	2,492
Douglas	179	594
Ferry	No returns	
Franklin	977	833
Garfield	93	986
Grant	256	656
Grays Harbor	2,134	4,758
Island	393	493
Jefferson	457	796
King	45,389	47,792
Kitsap	1,172	1,029
Kittitas	1,322	2,637
Klickitat	391	1,782
Lewis	2,494	5,188
Lincoln	708	2,746
Mason	312	746
Okanogan	533	1,714
Pacific	559	2,606
Pend O'Reille	403	1,056
Pierce	17,811	20,031
San Juan	233	671
Skagit	3,695	4,938
Skamania	130	523
Snohomish	6,718	9,983
Spokane	6,792	15,545
Stevens	999	272
Thurston	2,148	4,601
Wahkiakum	No returns	
Walla Walla	2,382	5,135
Whatcom	5,848	7,167
Whitman	1,223	6,217
Yakima	4,889	9,502
Total	117,666	183,621

1925 N. E. L. A. Convention Is to Be Held in San Francisco.—Franklin T. Griffith, president of the National Electric Light Association, on Nov. 14, announced that the next annual convention would be held in San Francisco during the week of June 15, 1925.

Edison Company Announces 1925 Construction Budget

Twenty-five million dollars was authorized by the directors of the Southern California Edison Company on Nov. 13 as the company's construction budget for 1925. This is believed to be one of the largest annual appropriations ever made in the United States for hydroelectric development and the distribution of electricity. Including the budget just passed, the company will have spent and authorized $143,000,000 for electric development and distribution since the close of the World War.

The $25,000,000 budget for 1925 will be expended along the following general lines:

For hydroelectric development on the Big Creek-San Joaquin River project	$ 7,535,000
For completion of steam plants now under construction	3,965,000
For increasing the 220,000-volt transmission facilities between Big Creek and southern California	1,500,000
For extension of distribution system and betterments in all districts	12,000,000

Included in the appropriation of $12,000,000 for system betterments is the proposed 1925 building program, which is as follows:

14 new substations	$723,750
32 reinforcements to existing substations	628,000
70 miles of new transmission lines	427,000
64 miles of rebuilt transmission lines	225,000
500 miles of new distribution lines	835,000
36 operators' cottages	235,000
26 garages	27,000
74 substation transformers, 73,050 kva.	256,000
35 high tension oil switches	175,000
100 low tension oil switches	80,000
3,000 distribution transformers, 100,000 kva.	750,000
20,000 poles	400,000
6,000 miles of wire, 5,000,000 lb	787,000
80,000 high voltage insulators	160,000
180,000 low voltage insulators	28,000
50,000 meters	459,000

The Florence Lake tunnel, which will cost when completed approximately $17,000,000, will be finished early in March, and the construction program on the Big Creek-San Joaquin River project will increase the water power generating capacity during the ensuing year by 55,000 hp. This will bring the total generating capacity of the company in water and steam up to 687,000 hp. in time to carry the expected increase in business for next year.

While the company spent about thirty million dollars last year in new construction, approximately ten million dollars was spent for the steam power construction, which was speeded up at an enormous rate to relieve the water power shortage which existed. With the 127,000 hp. steam plant at Long Beach nearly completed and the work at that place very nearly taken care of by the 1924 budget, this year's appropriation will provide largely for hydroelectric development. The expenditures of the company for 1924 and 1925, which will aggregate $55,000,000, will make a repetition of the shortage conditions of the year of 1924 impossible, so far as service on the system of the Southern California Edison Company is concerned.

Power Development on Klamath Prohibited Forever

Development of hydroelectric power on the lower Klamath River in northern California between the mouth of the Shasta River and the Pacific Ocean has been prevented for all time by the passage of initiative measure No. 11, sponsored by the California Fish and Game Commission. The commission has been strenuous in its fight to prevent the appropriation of the river for power purposes, holding that the Klamath should be protected for commercial and sport fishing. The passage of the measure by a vote of approximately five to three precludes the development of all of the undeveloped and unappropriated water power projects on the Klamath River in California for a distance of 175 miles. The power resources that have thus been rendered useless aggregate approximately 500,000 hp.

The bill was initiated by the fish commission because of the proposed development of 100,000 kw. on the lower river by the Electro-Metals Company of San Francisco. The power was to be used in electro-chemical and electro-metallurgical industries. The company had secured water rights from the California division of water rights and conditional preliminary permits from the Federal Power Commission. The federal commission voted to issue a conditional preliminary permit providing that the license, if granted, should require that the licensee should construct fishways or take such other measures as would insure the maintenance of existing conditions as to fish migration and fish culture on the Klamath. In this action the federal commission took the view that protection of the fish was vitally important, but that means could be found to save the fish and at the same time permit the development of this important power resource.

Idaho Commission Orders Further Reduction in Charges

Reduction of the minimum monthly charge from $3.50 to $2 for 1-kw. water heater service of the Idaho Power Company, Boise, Idaho, has recently been ordered by the Idaho Public Utilities Commission. The commission's desire to provide consumers with an incentive to use current more economically is given as the reason for this reduction.

The commission also has directed the Idaho Power Company to furnish comprehensive and detailed data regarding its retirement reserve. It will be recalled that some weeks ago the company filed in the local federal district court its bill in equity for the purpose of obtaining a review of all rate and valuation proceedings held before the commission.

First Section of Florence Lake Tunnel "Holed Through"

On the afternoon of Oct. 29 word was received from Southern California Edison Company camps at Big Creek, Calif., that there was only 16 ft. separating the tunnels between adits Nos. 1 and 2, and that the crews were conversing with one another. That night the two headings of the middle or short section of the tunnel were "holed through." This section is 11,954 ft., or nearly 2½ miles long, and is the central connection between the other two tunnel tangents, which are 4 and 7 miles long respectively.

The heading of this central section, which is driven west, was started on June 13, 1923, and the easterly heading was started June 26, 1923. With the exception of several hundred feet of tunnel that had to be timbered, the excavation was made through solid gray granite. The best monthly advance made in the west heading during June amounted to 582 ft. Some idea as to the accuracy of the engineering involved in this section may be had by noting the way the two headings came together, the alignment and grade lines coming within the thickness of a piece of paper of joining together.

After this section of tunnel is cleaned out and the timbered portion concreted, the crews will be assigned to the other headings now being worked. It is expected that the remaining sections will be "holed through" by March 6, 1925.

Irrigation District Plans Hydro Plant Near Riverside

Construction of a hydroelectric plant with a capacity of 3,000 hp., at an estimated cost of $300,000, is indicated in an application for permission to divert 2,000 sec.-ft. of water from the Okanogan River filed with Marvin Chase, supervisor of hydraulics, Olympia, Wash., by the Riverside Irrigation District, Okanogan County, Wash. A 15-mile transmission line and a distribution system are estimated to cost an additional $125,000. The district has bonded itself for $450,000 and has sold $250,000 of the issue. The project will put 4,000 acres of land along the Okanogan River near Riverside under water.

The diversion dam is to be 25 ft. high, 100 ft. long on the bottom and 150 ft. on the top. The dam, headworks and power house are to be of concrete, and it is understood that George Nelson, Seattle, has the contract for the job. The power house, constructed adjacent to the dam, will house three vertical, direct-connected, water-wheel-generator units of 950-hp. capacity each, using water at a 250-ft. head. The power will be used for irrigation pumping, and for lighting and power service to Riverside and several other small communities in the district.

Vallejo Public Utility Company Praised by Commission

Final inspection by the California Railroad Commission of the properties of the Vallejo Electric Light & Power Company, Vallejo, Calif., was completed on Oct. 3, and the commission, through its secretary, H. G. Mathewson, has sent a letter of commendation to the company. It is stated that the Vallejo company is among the few electric light and power companies in California to have removed all of the infractions of construction in accordance wtih commission rulings.

The secretary's letter says, in part: "The commission wishes to take this opportunity of thanking you for the splendid cooperation shown it in the discharge of the duty with which it is charged in this matter. Your properties are among the few which the commission has found in this condition to date, and your very active interest in the pursuit of the work has been most commendable."

Shortage of Power in Southern California Is Past

The power shortage which has existed in southern and central California since June 15 has been ended by rains which covered the state on Nov. 8 and 9, according to F. B. Lewis, assistant general manager of the Southern California Edison Company. Complete returns from the 56 branch offices of the Southern California Edison Company and from the mountain regions in which are located its hydroelectric plants, indicate that the period of the drought has passed.

In commenting on the situation Mr. Lewis has issued the following statement:

In the Big Creek-San Joaquin region, located in the high Sierra in the northeastern part of Fresno County, in which the Edison company has its larger hydroelectric generating plants and principal storage reservoirs, there was an average of 3 in. of rainfall in this storm, which, together with the rainfall of from 1½ to 2 in. in the Kern River region, where the company has three large plants, has brought up the streams sufficiently to furnish practically full capacity to the plants.

In the Giant Forest east of Visalia, where our company's Tule River and Kaweah River plants are located, a cloudburst occurred, 2 in. of rain falling in 12 min. In the San Bernardino Mountains, where the company's Santa Ana River and Mill Creek plants are located, there was on the average 1½ in. of rainfall.

The inflow into Huntington Lake, the company's storage reservoir, located at El. 7,000 in the Sierra, on Nov. 8 was equivalent to the amount of water used from that reservoir for a period of at least ten days. On the high peaks above this reservoir, from 8 to 12 in. of snow fell.

The rain not only removes the restrictions but also enables the company to discontinue the operation of the twelve obsolete steam plants which it has been operating this summer at an enormous cost. Some of these steam plants had not been operated for from ten to fifteen years, and required a great expense to rehabilitate, but have been important factors in the supplying of energy during the shortage. However, it is still necessary to continue the operation of the company's plants at Long Beach and Redondo. For the remainder of the season, if the rains continue, the company's twenty-one power plants will be able to operate at full capacity.

From the thirty-one service districts located in ten counties and supplying 350 cities, towns and intervening rural communities, reports of conditions have been received which indicate the following: In Tulare, Kings and parts of Fresno and Kern Counties, there has been an average of approximately 1½ in. of rain, which so materially assists the agricultural district that no more pumping for irrigation will be necessary this year. Likewise, in Los Angeles, San Bernardino, Orange, Ventura and Santa Barbara Counties, where the rainfall was from 1½ to 2 in., the company's system load will be materially decreased due to the cutting off of the irrigation load.

Despite the fact that through the past summer curtailment of the use of electricity was necessary, the Edison company and other companies with which interconnection has been maintained have been able, through the cooperation of all consumers, to keep all industries sufficiently supplied with power so that no loss of output was experienced. Loss of growing crops was also avoided in the agricultural districts.

Electric Dredges Used to Deepen Lake Almanor Channel

Dredging in Lake Almanor, Plumas County, Calif., has been practically completed by the Great Western Power Company. A channel 200 ft. wide, 16 ft. deep and 2½ miles in length has been dug to permit greater utilization of water from the lake than was possible with the old channel. Approximately 300,000 cu.yd. of material will be taken out of the bottom of the lake bed to form the new channel.

In excavating the channel the Great Western company used two electric dredges of the gold-digger type. The dredgers were manufactured in Oakland, shipped to the lake in sections by rail and motor truck, and were assembled on Lake Almanor. The dredgers are equipped with an endless chain of buckets.

By dredging the channel and the intake to the tunnel leading from Lake Almanor to Butte Valley the power company has made accessible an additional 50,000 acre-ft. of water. This water will be used by the Caribou plant of the company.

Arizona Voters Reject Colorado River Compact Backer

George W. P. Hunt, incumbent, was elected governor of Arizona for the fifth consecutive time on Nov. 4. Governor Hunt defeated the Republican candidate, Dwight B. Heard, whose platform called for the securing of endorsement of the Colorado River Compact by Arizona. (Journal of Electricity, Oct. 1, 1924, page 257.) The successful candidate was elected by a majority of 1,012 votes.

At the same election the voters of Arizona defeated an initiative measure providing for a survey of the Colorado River regarding irrigation and power dam sites. The measure, providing for an appropriation of $100,000, was defeated by a majority of 2,300 votes.

Washington and Idaho Properties Sold at Auction.—The public sale of the properties of the Washington-Idaho Water, Light & Power Company, scheduled for Nov. 8 at Chehalis, Wash., and Nov. 10 at Lewiston, Idaho, resulted in the purchase of both the eastern and western properties by L. B. Hatch of New York, representing the bond and note holders of the bankrupt company. The Chehalis property was bid in at $100,000, while the sale price of the Lewiston property was $1,125,000. The sales have not yet been confirmed by the court. The properties will be operated eventually by Pacific Power & Light Company interests, it is thought.

New Power Plant in Operation.—The Adams plant of the Southern Sierras Power Company, Riverside, Calif., was put in operation Oct. 31, which was fifteen days ahead of schedule. Credit for the rapid construction work that made this possible is due to E. J. Waugh, construction engineer, and Clarence H. Rhudy, resident engineer. The plant, which is in the Owens River Gorge, is of 10,000 kva.

New Substations Put in Service by Edison Company

Three new substations with a combined capacity of 24,000 kva. have recently been placed in service by the Southern California Edison Company. A fourth station with a capacity of 15,000 kva. will be in operation in the near future.

The largest of the new substations put in service recently is the Wabash substation, located near the Valley Junction station of the Pacific Electric Railway in east Los Angeles. This station has a capacity of 15,000 kva., which is all consumed by the Pacific Electric and Los Angeles Railway Companies. Bixby substation, with a capacity of 6,000 kva., has been placed in service in Long Beach. This station has six 2,300-volt feeders which will help out load conditions in that city. The 15,000-kva. State Street substation, which will be fed by three 60,000-volt lines, will be placed in operation in Long Beach in the near future. Eight 11,000-volt feeders will lead from the station. The Casitas substation, located alongside the Santa Barbara-Saticoy 60-kv. lines, has been put in service to relieve conditions around Ventura and Ojai. This station is of 3,000-kva. capacity.

The company also plans to go ahead with some of the 1925 building program in the very near future. The following is part of the work which will be done in the order of its importance:

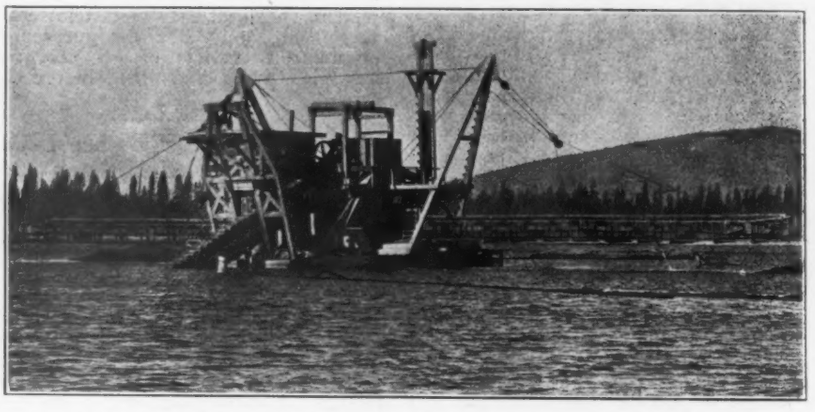
New 60-kv. rack at Inglewood substation.

New substation at Anita, capacity 9,000 kva., voltage 60-1514 kv.

Rebuilding of Dalton substation, 15-kv. rack.

New substations at South Pasadena, capacity 1,500 kva., voltage 15-4 kv.; El Monte, capacity 1,500 kva., voltage 15-4 kv.; Covina, capacity 1,500 kva., voltage 15-4 kv.; Compton, capacity 1,500 kva., voltage 15-4 kv.; Yucaipa, capacity 3,000 kva., voltage 30-11-2.3 kv.

California Water Survey Is Nearing Completion.—The statewide survey of the water resources of California, which is being conducted under the direction of the state engineer, is expected to be completed by March 1, 1925. From this survey it is hoped to base a state-wide policy of flood control, irrigation and power. The water survey was started in 1921, with a $200,000 appropriation by the state legislature, and when the funds gave out in 1923 the work was carried on through voluntary subscriptions raised by the San Francisco and Los Angeles chambers of commerce.



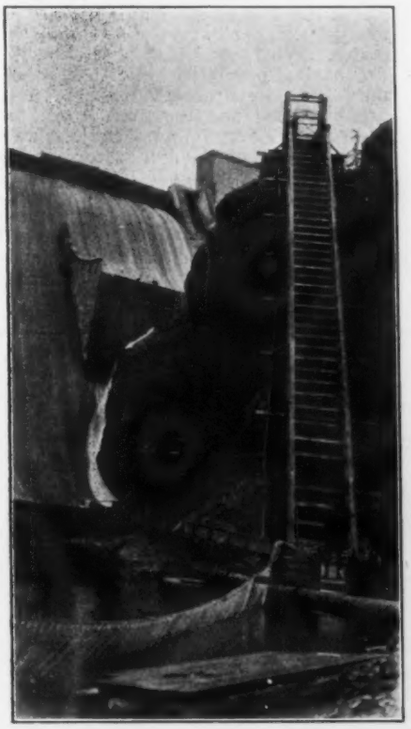
One of the electrically operated dredgers used in deepening the channel in Lake Almanor.

Initial Experiment With Salmon Escalator Successful

The first set of experiments with an escalator designed to take fish over high dams has been completed by a committee representing the power and fishing interests of the Northwest. The experiments have been conducted on the Condit Dam of the Northwestern Electric Company on the White Salmon River by a group headed by Prof. John N. Cobb, director of the College of Fisheries of the University of Washington. (Journal of Electricity, Nov. 1, 1924, page 343.)

A report of the experiments presented at a recent meeting of the committee on relations with public authorities concerning fishway matters of the Northwest Electric Light and Power Association. Representatives of the fish commissions of Oregon and Washington as well as United States engineers were present at the meeting.

Professor Cobb reported that a measure of success had been attained in the experiment of taking chinook salmon to the top of the 125-ft. dam by the use of a single-basket conveyor. He said that further experiments would be conducted at the same site next spring during the annual run of steelhead trout occurring in the White Salmon River at that time, and that he also plans to experiment on taking young fish down over high dams.



The fish escalator successfully used in raising fish 125 ft. to permit them to pass over the dam.

Among those present at the meeting was Col. William Kelly, chief engineer of the Federal Power Commission, Washington, D.C., who was interested in learning what was being accomplished in fishway experimentation in the Northwest, because of certain applications now pending before the commission involving high dams across spawning rivers. Among the most important of these applications is that of the Washington Irrigation & Development Company for a 90-ft. dam across the Columbia River at Priest Rapids. Colonel Kelly heard Professor Cobb's report and the discussion on it without comment.

Professor Cobb, in a later published statement about the operation of the

Basket used to raise fish in experiment at Condit Dam.

escalator at the Condit Dam, said, "The device was given exhaustive tests, and I feel more than justified the labor and money expended upon it. It is not my purpose now to go into details of the important results obtained, as they will be published in detail shortly and will speak for themselves."

Lighting Campaign Featured by League at State Fair

One of the most attractive exhibits at the Utah State Fair, held at Salt Lake City, Utah, during the first week of October, was that of the Rocky Mountain Electrical Cooperative League, featuring the Home Lighting Contest. The exterior of the booth was artistically used, as shown in the picture, to convey the message of the contest, by means of pictures illustrating primitive and present methods of utilization of light, and also showing the causes of eyestrain. The national prizes in the contest were also given a prominent place in the general scheme.

The interior showed a completely furnished living room, and by means of a flasher the contrast between proper and improper lighting of the home was effectively displayed. The exhibit occasioned an unusually large amount of interest among the many visitors.

Extensive Illumination Planned for San Diego Bath House

Electric illumination will be applied to the large swimming pool in a unique manner in the new Mission Beach bath house that is being constructed in San Diego, Calif. Not only will the interior of the bath house be lighted by special fixtures, but during the evenings the water itself will be illuminated from seven under-water flood lights.

The seven flood lights are to be placed in the deep water portion of the 175-ft. plunge with the intention of making the bottom as clearly visible there as at the shallow end, where the light from the building itself will penetrate the water. The lights are to be placed in crypts in the side walls of the plunge covered with heavy glass and accessible from the rear, so that the lamps may be changed at will. Each of the crypts will be fitted with 8,000-watt lamps, and it is announced that color effects may be tried as soon as the effects of the original installation can be determined.

The walls of the plunge are to be lined with white ceramic tile so that the colored lighting will be reflected from them in such manner as to produce spectacular results. Not only in the lighting of the plunge will the bath house illumination be unique, but the entire building inside and outside is being planned for original lighting treatment. The entire beach in front of the bath house is to be flood lighted from lights which will play from the roof of the structure. The floor of the building will also be flood lighted from a battery of lights placed in the lawn. Artistic bracket lights, 46 in number, will also be installed around the building. The interior of the building will be lighted artistically by means of flood lights and concealed lighting fixtures, it was announced. Combined connected load is expected to be in the neighborhood of 100 kw. E. W. Weathers of San Diego is electrical engineer in charge of the installation.

The Bryant Electric Company, Bridgeport, Conn., has announced that it has recently re-designed its No. 760 and 762 single and duplex composition body flush receptacles with side wiring terminals.

Exhibit of Rocky Mountain Electrical Cooperative League at the Utah State Fair.

Progress Report on California Lighting Contest Issued

Interest in the Better Home Lighting Contest and in proper illumination for the home has been realized to a great extent in California, according to the progress report of R. E. Fisher, regional director of the contest in California. The fact has been evidenced by the enthusiasm of the children in taking part in the contest and by the requests for speakers coming from women's clubs and business clubs. Such clubs desired speakers not only during the time that the contest was in progress, but also have asked for dates after the contest closes on Nov. 15.

Up to Nov. 12, 72,000 primers had been distributed in the state, and 20,009 signed registration cards had been returned to the California Electrical Cooperative Campaign. The duration of the contest was extended from Oct. 31 to Nov. 15 in order to give all districts an opportunity thoroughly to cover their fields.

Following are the high spots of the progress report issued Oct. 29:

In district No. 2 progress has been satisfactory, and L. R. White, district chairman, has registered 300 entrants in Chico. F. A. Peck, district No. 3 chairman, has secured 100 per cent cooperation from the schools in Marysville and vicinity and has distributed 500 more primers than were originally allotted to the district. The Yuba-Sutter Electrical Development League has advertised the campaign, as have local dealers.

Work has been carried on in the schools of district No. 5, of which R. N. Phelan, Sacramento, is chairman. The Electragists of the district have been active in assuring the success of the contest and have inserted 150 in. of the 192 in. of advertising that has appeared. The local contractor-dealers have been active in district No. 6, according to J. S. Ross, the San Rafael district chairman.

The speakers' bureau has been active in San Francisco, fourteen talks having been made. The Pacific Gas and Electric Company printed 50,000 stickers telling of the contest, and seven large companies have used these stickers on all letters mailed. Both the Pacific Gas and Electric Company and the Great Western Power Company used their booths at the San Francisco Industrial Exposition to distribute contest literature. Two thousand primers were given away there. Over 12,000 primers were distributed in district No. 7, according to H. H. Allison, district chairman. In district No. 8 Clark Baker of Oakland has secured the cooperation of all the schools except in Berkeley. Nine talks have been presented before student bodies.

R. R. Robinson, San Jose, district No. 9 chairman, has reported that at seven talks before schools, 1,450 students were addressed and 786 of these signed up for the contest. A half-page cooperative advertisement was carried by twenty-one dealers of this district, and copies were placed on the bulletin boards of every school in the county. Approximately seventy schools were visited in district No. 11 by the committee headed by H. K. Griffin of Stockton. Excellent results were secured.

In districts Nos. 13-16, in the central part of the state, the committee is headed by A. M. Frost, and he has reported that eleven schools made the contest work part of their course of study, and one town is offering prizes to the grammar school students. Three towns have conducted advertising campaigns. R. R. Carruthers, Visalia, chairman of district No. 17, has reported that the full quota of primers has been used and that interest among the children is high.

District No. 18 could use 20,000 primers if they were available, according to K. E. Van Kuran, district chairman. Each principal approached in Los Angeles has undertaken the distribution of the primers in his own school. Advertisements of the contest have been run in the journals of the high schools and junior high schools with marked success. Thirteen thousand six hundred primers have been distributed in the city. In districts Nos. 20 and 21, A. W. Childs, chairman, has distributed 100 per cent of the material available. In several schools in the district the essay was made an accredited part of the English course. Local electrical organizations have been active in furthering the campaign.

In districts Nos. 22 and 23, despite the fact that there is much sparsely inhabited territory, the committee, under George Bigelow of Riverside, has disposed of two-thirds of its quota of primers. District No. 24, comprising territory in the vicinity of Reno, Nev., has utilized 50 per cent of its material through the energetic interest of the dealers, as evidenced by a full-page cooperative advertisement in the Reno paper.

The regional committee made arrangements for the broadcasting of a series of talks dealing with the contest. Stations in San Francisco, Oakland and Los Angeles agreed to use the material.

Bonds for Purchase of Light Plant Sold by Colorado Springs

Another chapter has been written in Colorado Springs, Colo., on the fight between the city and the central station there in which the former emerged the victor, in the sale of $200,000 general obligation 4½ per cent bonds at a record premium to the United States National Company of Denver, with a dozen other firms offering closely competitive bids. This is the first series of the issue of $1,200,000 authorized last May for the erection and purchase of the municipal lighting system.

Inasmuch as the city has agreed to take over the plant of the Colorado Springs Light, Heat & Power Company at a figure close to $600,000, it is entirely possible that the remaining series of the bond issue will be withheld, only enough securities being sold to provide capital to cover the initial purchase.

The first of the legal steps necessary to put the Colorado Springs company in position to liquidate was effected last week with the appointment of J. F. Dostal, general manager of the company, as a receiver, along with Ivor O. Wingren, Denver attorney, by Federal District Judge J. Foster Symes. Application for a receiver was made by the New York Trust Company, trustee of one and a half million dollars of company bonds, interest on which was defaulted over a year ago.

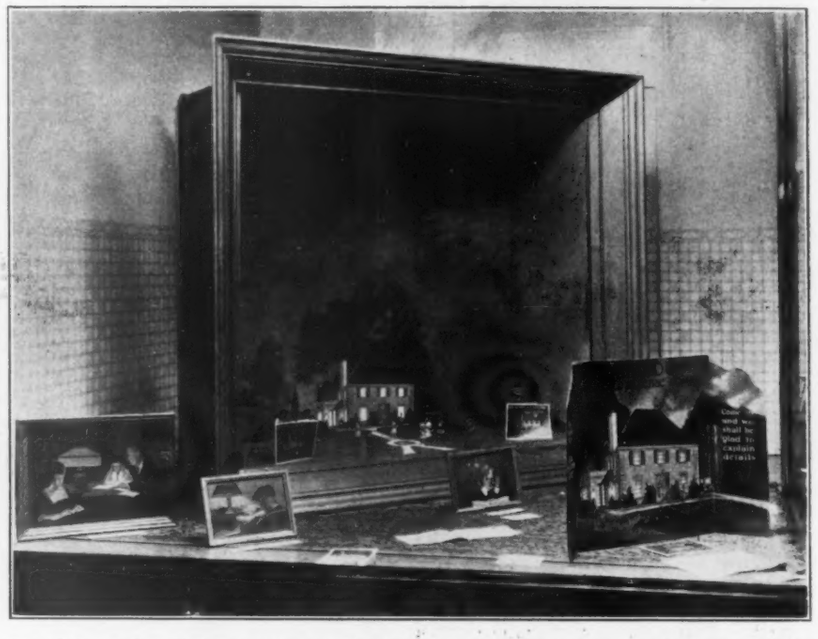
The Federal Porcelain Company, Carey, Ohio, has published several folders descriptive of its Fedco blue radio insulator, setting forth in an attractive manner the advantages of this product.

Map of Transmission Systems of Northwest Is Issued

A map of the Northwest, recently published by the Pacific Power & Light Company, Portland, Ore., shows the main transmission systems of practically every company operating in that territory. Each company's system is printed either in red, yellow or brown, with connected or nearby lines of adjacent companies plainly designated by a change of color. No voltages are marked, but, in general, the principal lines of each company, whether 11,000 volts or higher, are shown. In certain instances of small isolated systems, lines of 6,600 volts are included.

The transmission line data were gathered from the different companies by the engineering department of the Pacific Power & Light Company, while the base map was prepared under the personal supervision of Lewis A. McArthur, vice-president and general manager, who is recognized as an authority on the geography of the Northwest. It is said that this base map is the most accurate map of the Pacific Northwest, in drainage, land lines and names, that has ever been published.

Pamphlet Issued on Domestic Market for Electrical Merchandise.—The U. S. Department of Commerce has issued No. 9 of its Trade Promotion Series, "Domestic Market Possibilities for Electrical Merchandising Lines," by R. A. Lundquist and H. E. Way. This is an analysis of percentage distribution by states. Ten factors that bear upon the purchasing power for electrical appliance lines were decided upon. These are discussed and the final results of the survey given, followed by tabulated developments of the ten factors and a summary. The pamphlet, which is "an engineering analysis of the relative market possibilities in different states based upon definite statistical data," may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.



One of the window displays used by the Utah Power & Light Company to stimulate interest in the Better Home Lighting Contest in Salt Lake City, Utah.

Power Situation Much Improved by Recent Heavy Rains

The recent heavy rains that have fallen in northern and central California are a cause of much satisfaction to power companies and irrigation district officials. The rainfall this season is almost two and a half times the average, and only four times in the last seventy-five years has as much rain fallen by Nov. 10 as has fallen this year. Streams are running in beds that have been dry for months, and hillsides, formerly dry and brown, are now grass-covered. Heavy snow in the mountains, in some places over a foot in depth, give promise of good runoff in the spring. All signs point to continued rains and heavy snows this winter, and the severe drought seems to be definitely at an end.

According to the records of the Pacific Gas and Electric Company, San Francisco, the seasonal precipitation over its system for the period beginning July 1 averages, roughly, double that for the corresponding period last year. All points on the system have recorded a greater amount of rain than fell in 1923, but the northern section of the territory has not received as large an amount in proportion as the central and southern sections. Reservoir content has been increased from 40 per cent of normal to 83 per cent, and the company expects to have about 100 per cent normal storage content by Nov. 15. Normal stream flow, which was 37½ per cent deficient, has been increased by the recent storms to slightly above normal.

Figures furnished by the San Joaquin Light & Power Corporation, Fresno, show that the rainfall at Crane Valley reservoir for the season to Nov. 10 has been 8.71 in. The normal seasonal rainfall to Oct. 31 is 2.56 in., and to Nov. 30 it is 5.08 in. Storage in the Crane Valley reservoir has been increased from 1,393 acre-ft. to 2,198 acre-ft. Precipitation for the season at some of the other points on the system is as follows:

Power house No. 1	4.86 in.
Kerckhoff power house	4.30 in.
Tule power house headworks	10.25 in.
Kern Canyon power house	.44 in.
Bakersfield steam plant	.32 in.
Fresno	1.37 in.*
Merced Falls	4.37 in.

*Normal to date at Fresno is 1.14 in.

Prior to the October rains, the flow of the Kern River was about 80 sec.-ft., and that of the San Joaquin River, excluding the water released from storage by the San Joaquin and Edison companies, was about 60 to 80 sec.-ft. On Nov. 9 the average flow of the Kern River was 144.5 sec.-ft., and that of the San Joaquin 1,210 sec.-ft.

Byllesby Company Forms New Utility Holding Company

H. M. Byllesby & Company have announced the formation of a new public utility holding and engineering and management company to be known as the Standard Power & Light Corporation. According to the company's announcement, the new organization has been formed for the purpose of acquiring valuable controlling and other interests in public utility companies and important hydroelectric power sites strategically located to supply large interconnected power systems.

Formation of the new company, which will be controlled by the Standard Gas & Electric Company and H. M. Byllesby & Company, has been made necessary by the constant growth and expansion of the former. That company has been developing public utility properties for the past fourteen years, and its system now serves over 900 cities and towns in seventeen states, with combined annual gross earnings in excess of $53,000,000.

Capitalization of the new company will consist of 100,000 shares of preferred stock and 400,000 shares of common, both without nominal or par value, but in case of liquidation the preferred shares will be entitled to $100 each and accrued dividends before any distribution is made on the common stock. Preferred stock will also be cumulative, with an annual dividend rate of $7 a share.

Eastern Oregon Light & Power Company Files on Grande Ronde River.—Among the applications to appropriate water from Oregon streams recently filed in the office of Rhea Luper, state engineer, is that of the Eastern Oregon Light & Power Company, Baker, Ore., which has filed on the Grande Ronde River in Wallowa County for 1,364 t. hp.

Bulletin Issued by Purdue University Engineering Department.—The Engineering Extension Service of Purdue University, Lafayette, Ind., has published Circular No. 4, "Operation of Three Phase Induction Motors Under Abnormal Supply Conditions," by D. D. Ewing and C. F. Bowman.

Architect's drawing of new office and factory buildings being erected for the Pacific Electric Manufacturing Company, San Francisco, manufacturer of high tension switch gear. The new home of the company will be at the corner of Keith St. and Donner Ave., in the new industrial district of San Francisco. The main building, to house the manufacturing department of the company, will be 100 x 300 ft. of reinforced concrete. Spur track facilities will be available. The office building will be of two stories and will occupy a space 36x70 ft. The company expects to be manufacturing in the new plant by Feb. 1, 1925. The company was founded in 1908 by Joseph Thompson, president of the concern.

P.C.E.A. Committee Personnel for 1924-25 Announced

Appointments to the sections, bureaus, committees and subcommittees of the Pacific Coast Electrical Association for the present year have been made by the various chairmen. Herewith is reproduced the list of officers of the association, together with the complete committee personnel for 1924-25.

EXECUTIVE COMMITTEE

F. A. Leach, Jr., P. G. and E. Co.—president.
W. A. Baurhyte, L. A. G. & E. Corp.—vice-president.
S. W. Coleman, Coast Counties G. & E. Co.—vice-president
J. F. Pollard, Coast Valleys G. & E. Co.—treasurer
S. H. Taylor, 527 Rialto Bldg.—secretary.
R. M. Alvord, G. E. Co.
J. B. Black, Great West. Pwr. Co.
C. L. Chamblin, Calif. Elec. Const. Co.
F. O. Dolson, So. Sierras Pwr. Co.
P. M. Downing, P. G. and E. Co.
A. M. Frost, S. J. L. & P. Corp.
W. L. Frost, So. Cal. Ed. So.
H. L. Harper, West. Elec. Co.
R. J. Holtermann, Fobes Supply Co.
C. T. Hutchinson, Journal of Electricity
L. M. Klauber, S. D. Cons. G. & E. Co.
K. E. Van Kuran, Westinghouse E. & M. Co.

PUBLIC POLICY SECTION

R. H. Ballard, So. Cal. Ed. Co.—chairman
H. L. Aller, Central Ariz. Pwr. Co.
W. A. Baurhyte, L. A. G. & E. Corp.
J. B. Black, Great West. Pwr. Co.
G. A. Campbell, Truckee River Pwr. Co.
S. W. Coleman, Coast Counties G. & E. Co.
W. E. Creed, P. G. and E. Co.
M. A. Fleishhacker, Great West. Pwr. Co.
H. F. Jackson, Sierra & S. F. Pwr. Co.
S. A. Kahn, West. States G. & E. Co.
S. M. Kennedy, So. Cal. Ed. Co.
R. S. Masson, Ariz. Pwr. Co.
P. B. McKee, Cal. Ore. Pwr. Co.
J. B. Miller, So. Cal. Ed. Co.
G. D. Smith, Ontario Pwr. Co.
A. B. West, So. Sierras Pwr. Co.
A. E. Wishon, S. J. L. & P. Corp.

PUBLIC RELATIONS SECTION

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R. A. Balzari, Westinghouse E. & M. Co.
E. S. Beckett, P. G. and E. Co.
G. T. Bigelow, So. Sierras Pwr. Co.
G. C. Campbell, Truckee River Pwr. Co.
W. H. Crawford, Calif. Ore. Pwr. Co.
R. W. Duval, P. G. and E. Co.
F. A. Easton, S. J. L. & P. Corp.
Miss J. Frances Emans, So. Cal. Ed. Co.
Harry Harper, West. Elec. Co.
V. W. Hartley, Cal. Elec. Co-op. Camp.
A. E. Holloway, S. D. Cons. G. & E. Co.
C. T. Hutchinson, Journal of Electricity
D. C. Ray, P. G. and E. Co.
E. O. Shreve, G. E. Co.
R. E. Smith, So. Cal. Ed. Co.
F. H. Woodward, Great West. Pwr. Co.

PUBLICITY SECTION

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R. D. Brigham, Great West. Pwr. Co.
C. L. Burgess, Westinghouse E. & M. Co.
W. A. Cyr, S. D. Cons. G. & E. Co.
V. W. Hartley, Cal. Elec. Co-op. Camp.
J. C. Hobrecht, J. C. Hobrecht Co.
A. G. Jones, G. E. Co.
C. A. Luckenbach, L. A. G. & E. Corp.
F. S. Myrtle, P. G. and E. Co.
C. H. Peirson, So. Cal. Ed. Co.
J. F. Pollard, Coast Valleys G. & E. Co.
M. W. Scanlon, Westinghouse E. & M. Co.
F. Z. Stone, So. Sierras Pwr. Co.
G. C. Tenney, Journal of Electricity

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H. L. Doolittle, So. Cal. Ed. Co.
C. F. Gilcrest, S. J. L. & P. Corp.
R. A. Hopkins, Westinghouse E. & M. Co.
L. M. Klauber, S. D. Cons. G. & E. Co.
L. J. Moore, S. J. L. & P. Corp.
R. C. Powell, P. G. and E. Co.
M. H. Schnapp, G. E. Co.
E. R. Stauffacher, So. Cal. Ed. Co.
I. C. Steele, P. G. and E. Co.
J. E. Woodbridge, Consulting Engineer.
J. G. Rollo, L. A. G. & E. Corp.
J. A. Koontz, Jr., Great West. Pwr. Co.

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C. H. Delany, P. G. and E. Co.
V. Estcourt, P. G. and E. Co.
G. W. Hamilton. Westinghouse E. & M. Co.
V. E. Johnson, So. Sierras Pwr. Co.
L. J. Kraps, So. Cal. Ed. Co.
R. F. Leefield, L. A. G. & E. Corp.
H. S. Markey, Great West. Pwr. Co.
A. Y. Meudell, S. J. L. & P. Corp.
R. F. Monges, G. E. Co.
M. E. Mulkey, P. G. and E. Co.
A. D. Murphy, S. D. Cons. G. & E. Co.
G. Z. Ogden, S. J. L. & P. Corp.
R. C. Powell, P. G. and E. Co.
E. A. Quinn, S. J. L. & P. Corp.
Weller Reed, L. A. G. & E. Corp.
C. P. Rhine, S. J. L. & P. Corp.
P. M. Robinson, Hunt-Mirk Co.
J. G. Rollow, L. A. G. & E. Corp.
Emory Sherwin, S. D. Cons. G. & E. Co.
C. R. Stewart, So. Cal. Ed. Co.
W. E. Thomson, So. Cal. Ed. Co.
W. E. Thompson, So. Cal. Ed. Co.
E. E. Valk, G. E. Co.
R. A. Wallingford, S. J. L. & P. Corp.
W. J. Wheeler, S. D. Cons. G. & E. Co.
C. W. Wiggins, S. D. Cons. G. & E. Co.
F. V. Wright, So. Sierras Pwr. Co.

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J. M. Buswell, S. J. L. & P. Corp.
R. H. Cates, So. Cal. Ed. Co.
E. N. D'Oyly, West. States G. & E. Co.
W. R. Frampton, So. Cal. Ed. Co.
N. B. Hinson, So. Cal. Ed. Co.
J. A. Koontz, Jr., Great West. Pwr. Co.
S. J. Lisberger, P. G. & E. Co.
H. H. Miller, So. Sierras Pwr. Co.
E. R. Northmore, L. A. G. & E. Corp.
S. P. Russell, H. B. Squires Co.
D. D. Smalley, Midland Counties Pub. Service Corp.

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Clatton Biggs, So. Cal. Ed. Co.
M. O. Bolser, L. A. Bureau P. & L.
H. H. Buell, P. G. and E. Co.
P. E. Chapman, P. G. and E. Co.
E. R. Cowles, P. G. & E. Co.
R. S. Daniels, Cal. Ore. Pwr. Co.
G. H. Hagar, Great West. Pwr. Co.
N. B. Hinson, So. Cal. Ed. Co.
D. J. Kelly, S. D. Cons. G. & E. Co.
H. G. Keesling, P. G. and E. Co.
Raymond Lewelling, L. A. Bureau P. & L.
O. C. Miller, L. A. G. & E. Corp.
H. H. Minor, S. J. L. & P. Corp.
Z. T. Pettit, L. A. G. & E. Corp.
R. C. Powell, P. G. and E. Co.
A. C. Putnam, So. Sierras Pwr. Co.
J. C. Pyle, Standard Underground Cable Co.
G. A. Riley, L. A. G. & E. Corp.
R. G. Sheppard, So. Cal. Ed. Co.
Vinton Smith, Standard Underground Cable Co.
E. J. Willits, L. A. Bureau P. & L.

OVERHEAD SYSTEMS BUREAU

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Distribution Transformer Standardization Committee

N. B. Hinson, So. Cal. Ed. Co.—chairman.
R. S. Masson, Ariz. Pwr. Co.
G. A. MacDonald, L. A. Bureau P. & L.
R. S. Daniels, Cal.-Ore. Pwr. Co.
T. W. Snell, Coast Valleys G. & E. Co.
J. A. Koontz, Jr., Great West. Pwr. Co.
F. E. Dillinger, L. A. G. & E. Corp.
R. V. Shields, Nev. Valleys Pwr. Co.
R. R. Cowles, P. G. and E. Co.
A. J. Theis, P. G. and E. Co.
P. C. Hatch, S. D. Cons. G. & E. Co.
D. D. Smalley, S. J. L. & P. Co.
H. H. Minor, S. J. L. & P. Co.
G. E. Decker, So. Cal. Ed. Co.
F. G. Hamilton, So. Cal. Ed Co
A. C. Putnam, So. Sierras Pwr. Co.
W. C. Smith, G. E. Co.
Warren La Barr, Packard Elec. Co.
J. M. Morris, Westinghouse E. & M. Co.
J. E. MacDonald, Joint Pole Comm.
A. E. Garland, Garland-Affolter Co.
G. E. Armstrong, Garland-Affolter Co.
R. O. Waltham, Cal. R. R. Comm.
F. D. Morgans, So. Sierras Pwr. Co.

Line Construction Costs Committee

R. E. Cunningham, So. Cal. Ed. Co.—chairman.
J. W. Ellis, P. G. and E. Co.
H. H. Minor, S. J. L. & P. Corp.
C. C. May. S. D. Cons. G. & E. Co.
F. C. McLaughlin, So. Cal. Ed. Co.

Line Construction Rules Committee

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O. L. Moore, L. A. G. & E. Corp.
L. A. Reynolds, Great West. Pwr. Co.
C. P. Staal, So. Cal. Ed. Co.
B. B. Stith, West. States G. & E. Co.
C. A. Swigart, Cal. Ore. Pwr. Co.
M. F. Wales, Coast Counties G. & E. Co.

PURCHASING AND STORES SECTION

H. O. McKee, So. Cal. Ed. Co.—chairman
H. E. Cox, So. Cal. Ed. Co.
C. R. Eccles, West. States G. & E. Co.
J. L. Gray, Co. Cal. Ed. Co.
F. F. Henry, So. Cal. Ed. Co.
J. H. Hunt, P. G. and E. Co.
L. S. Jones, Cal. Ore. Pwr. Co.
C. A. Kelley, So. Sierras Pwr. Co.
Wm. Maddock, L. A. G. & E. Corp.
D. P. Mason, S. J. L. & P. Co.
W. J. McCullough, So. Cal. Ed. Co.
N. L. Morris, So. Cal. Gas Co.
T. B. Parks, L. A. G. & E. Corp.
G. C. Robb, P. G. and E. Co.
R. E. Thompson, S. D. Cons. G. & E. Co.
I. B. Walther, Cal. Ore. Pwr. Co.
C. D. Weiss, S. D. Cons. G. & E. Co.

PERSONNEL SECTION

S. C. Haver, Jr., So. Cal. Ed. Co.—chairman.
E. G. McCann, P. G. and E. Co.—vice-chairman.
Herbert Dewes, So. Sierras Pwr. Co.
R. C. Eccles, West. States G. & E. Co.
E. J. Kendall, Great West. Pr. Co.

INSURANCE SECTION

R. J. Cantrell, P. G. & E. Co.—chairman
Herbert Dewes, So. Sierras Pwr. Co.
W. E. Durfey, S. J. L. & P. Corp.
A. C. Johnson, Ariz. Pwr. Co.
H. E. Luce, Truckee River Pwr. Co.
H. R. Peckham, S. D. Cons. G & E. Co.
Clifton Peters, So. Cal. Ed. Co.
C. S. Vance, L. A. G. & E. Corp.

Meetings

Commercial National Section Is to Meet in San Rafael

The Commercial National Section of the National Electric Light Association will hold a meeting at the Hotel Rafael, San Rafael, Calif., on Nov. 19-21. Chairman W. R. Putnam, vice-president and general manager of the Idaho Power Company, Boise, Idaho, will open the meeting and will preside. F. A. Leach, Jr., vice-president and general manager of the Pacific Gas and Electric Company, San Francisco, Calif., and president of the Pacific Coast Electrical Association, will welcome the members and guests and will assist in the general program. Members of the Commercial National Section and of the Commercial Section of the Pacific Coast Electrical Association will be in attendance. A. M. Frost, chairman of the Commercial Section of the Pacific Coast Electrical Association, will assist in the deliberative and social arrangements and will hold meetings of that section at his discretion.

All general and committee meetings will be held in the Hotel Rafael and the complete schedule of meetings will be posted on the bulletin board. The tentative schedule is as follows:

Nov. 19—General conference—9:30 a.m. to 10:20 a.m.
Lighting committee—10:30 a.m. to 12:30 p.m.
Power committee—2 p.m. to 5:30 p.m.
Appliance committee—2 p.m. to 5:30 p.m.
Nov. 20—Customers' relations committee—9:30 a.m. to 12:30 p.m.
Electric cooking and heating committee—9:30 a.m. to 12:30 p.m.
Electric domestic refrigeration committee—2 p.m. to 5:30 p.m.
Transportation committee—2 p.m. to 5:30 p.m.
Nov. 21—General conference—9:30 a.m. to 12:30 p.m.
Section's executive committee—2 p.m. to 5:30 p.m.

There will be ample provision for sports, and arrangements have been made for the courtesies of the Marin Golf Club for those who wish to play. Tennis courts of the Hotel Rafael will be available for those who wish to engage them, and special entertainment features will be provided for the ladies. The San Rafael Rotary Club has donated prizes for a ladies' bridge party, and other ladies' entertainment will be furnished under the direction of Mrs. Sawyer, president of the Women's Club of San Rafael, Mrs. H. M. Crawford and Mrs. H. G. Ridgway. In addition to the prizes mentioned above, the Pacific Coast Electrical Association has also donated several prizes for winners in the ladies' contests.

Robert Sibley, executive manager of the California Alumni Association, will speak on the World Power Conference held in London, Eng., July, 1924, and other speakers will be announced later. On Friday evening, Nov. 21, there will be an informal banquet at which C. T. Hutchinson, editorial director of the Journal of Electricity, will be toastmaster.

A special feature of the meeting will be an excursion to the top of Mt. Tamalpais, which will be held on the afternoon of Nov. 21. Those making the trip will leave the hotel at 3 p.m. and will have an opportunity to view the sunset from the top of the mountain. After viewing the San Francisco Bay area in the early evening, when the lights are on, the party will return to the hotel in time for the banquet, which will be served at 8:30 p.m. Tickets to the banquet will be $3 each.

On Saturday, Nov. 22, a special automobile tour of San Francisco, with the Pacific Gas and Electric Company as host, will be given to the visitors from the East, and luncheon will be served at one of the cafes. From the cafe, automobiles will take the guests to the ferry in order that those who wish may proceed to the California-Stanford football game at Berkeley. Automobiles will meet the guests on the Oakland side of the bay and will transport them to the game. After the game the same machines will carry the members back to the ferry in Oakland or to the ferry for San Rafael.

Registration for the meeting will be under the direction of D. C. Ray, manager of the bureau of public relations of the Pacific Gas and Electric Company, and all in attendance will be required to register. All entertainment features except the banquet on Nov. 21 will be complimentary to Eastern members and guests. Members of the Pacific Coast Electrical Association, however, will pay the registration charges to be announced later.

COMING EVENTS

Commercial National Section, National Electric Light Association—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Electrical Supply Jobbers' Association—
Hotel Cleveland—Cleveland, Ohio
Nov. 19-21, 1924

Sacramento Contractors Meet Power Company Officials

The second joint meeting of power company representatives and Sacramento, Calif., contractor-dealers was recently held at the office of the Electrical Contractors' and Dealers' Association of Sacramento. The meeting was for the purpose of discussing problems of mutual interest and concern. As in the case of the first meeting, many matters were brought up and considerable was accomplished in the way of better relationship and procedure. Among those present were: C. V. Schneider, George C. Foss, J. C. Hobrecht, T. L. Nightingale, Clifford Prudhomme, L. M. McGinnis, Carl F. Vining and E. M. Miller, of the Sacramento association; J. W. Wrenn, of the Great Western Power Company, San Francisco; R. T. Stephens and Thomas Watson, of the Pacific Gas and Electric Company, Sacramento, and Walter F. Price, executive secretary of the California Electragists, San Francisco.

N.E.L.A. Prime Movers Committee Serial Report Published.—"Boilers, Superheaters and Economizers," the serial report of the Prime Movers Committee (1923-1924), Technical National Section, National Electric Light Association, has been published and is being sent to member companies.

Sacramento Valley Electrical Society Elects Officers

At the recent annual election of the Sacramento Valley Electrical Society, Sacramento, Calif., the following officers were chosen for the ensuing year: president, G. T. Lundlee, G. T. Lundlee Company; secretary, Roy N. Phelan, Electrical Contractors' and Dealers' Association; treasurer, W. L. Hill, Pacific Gas and Electric Company; directors, W. H. Evans, Sacramento Northern Railroad; F. H. McGinnis; A. H. Hobbs, Pacific Telephone & Telegraph Company. These directors will serve for two years. The directors whose terms do not expire for another year were: W. J. Delehanty, General Electric Company; F. D. Bennett, Radio Equipment Company; C. H. Carter, C. H. Carter Company.

The meeting was addressed by Albert H. Elliot, secretary of the Pacific Coast Electrical Supply Jobbers' Association, San Francisco, Calif., who spoke on "Play the Game Straight." Following this, a short, comprehensive film, "Electrical Transmission of Speech," was shown. This was supplied by the Pacific Gas and Electric Company, Sacramento, Calif.

COMING PACIFIC COAST ELECTRICAL ASSOCIATION MEETINGS

Executive Committee, Commercial Section—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Appliance Bureau—Commercial Section—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Customer Relations Bureau, Commercial Section—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Electric Cooking and Heating Bureau, Commercial Section—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Lighting Bureau, Commercial Section—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Power Bureau, Commercial Section—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Transportation Bureau—Commercial Section—
Hotel Rafael, San Rafael, Calif.
Nov. 19-21, 1924

Purchasing and Stores Section—
Del Monte, Calif.
Nov. 20-21, 1924

Publicity Section—
527 Rialto Building, San Francisco, Calif.,
Nov. 21, 1924

Technical Section—
San Franicsco, Calif.
Jan. 7-9, 1925

P.C.E.A. Technical Section Meetings Scheduled.—A three-day series of meetings is to be held in San Francisco, Calif., Jan. 7-9, by the Technical Section of the Pacific Coast Electrical Association, under the chairmanship of P. O. Crawford. The place of meeting has not yet been announced.

Publicity Section to Hold Meeting.—The Publicity Section of the P.C.E.A. will meet in the office of the secretary of the association, 527 Rialto Building, San Francisco, at 2 p.m. on Nov. 21. The meeting has been called by A. C. Joy, chairman of the section.

Manufacturer, Dealer and Jobber Activities

The Western Electric Sign Company, Inc., Seattle, has been organized by James C. Zancker, for eight years Northwest manager for the Federal Electric Company, and Carl E. Nord, who formerly headed the Nord Company, sign manufacturers. The firm has headquarters at 535 Central Building.

The L. C. Warner Company, 307½ Pine Street, Portland, Ore., has recently opened a wholesale store for Savage washing machines, and radio supplies, with H. S. Allen as branch manager.

Woodard, Clarke & Company, one of the oldest drug stores in the city of Portland, Ore., has sold its retail business to the **Stout, Lyons Drug Company.** A complete line of electrical appliances and lamps is carried in the electrical department of the concern which is managed by H. E. Cornthwaite.

The Square D Company, Detroit, Mich., has produced a new device called the Wigginton Voltage Tester. The device is built for rough usage, requires no lamps, is self-contained and indicates voltages on any line up to 550 volts, either a.c. or d.c.

Lewis & Watts, who for the past four years have specialized in the Northwest on the design and construction of power plants and who also have acted as representatives of several Eastern manufacturers of power plant equipment, have opened offices in the Rialto Building, San Francisco, Calif. Ralf E. Webber will be in charge of this office.

The Rockwood Manufacturing Company. Indianapolis, Ind., has announced that seven Western warehouses have been established for delivery of its products. Stocks are now carried at Los Angeles, San Francisco, Calif., Seattle, Wash., Salt Lake City, Utah, and Denver, Colo.

The G. & W. Electric Specialty Company, Chicago. Ill., has just issued Bulletin No. 24. This is a pocket size booklet descriptive of installations of G. & W. potheads. The booklet also contains interesting information for engineers.

The Burndy Engineering Company, Inc., New York City, has just issued an interesting booklet on Burndy T-Connectors for tubing cables and solid buses. The booklet contains detailed information relative to these devices and also interesting engineering data on copper tubes, solid round copper rods and bare concentric cables.

The Domestic Electric Appliance Company has been established in Colorado Springs, Colo., by Frank Volger, commercial manager of the Colorado Springs Light, Heat & Power Company. The new company will be located at 128 North Tejon Street and will be in charge of H. H. Stover. The central station company operating in the city has closed out its merchandising department, owing to the early municipal operation of the power plant there.

The Bryant Electric Company, of Bridgeport, Conn., has recently placed on the market a combination bakelite pendent switch and appliance outlet for use in connection with lighting fixtures which are out of convenient reach.

The Westinghouse Electric & Manufacturing Company has brought forth an interesting 24-page booklet describing and stating the application of various varnishes, insulating compounds and finishing materials. The booklet will be furnished upon request for Folder 4249-B direct from the factory.

The Roller-Smith Company, New York City, has recently issued Bulletins Nos. 100, 200, 430 and 550, descriptive of electrical instruments for signal system testing, portable direct-reading, rail bond testers, direct current switchboard instruments, and relays.

The O. C. White Company, Worcester, Mass., has just brought out a new type of universally adjustable joints known as the White Style FL, which enables a contractor-dealer to use a spot reflector as a spot or flood light for any of the numerous requirements of this particular type of lighting.

Partrick & Wilkins Company, Philadelphia, Pa., has just issued catalog No. 42 on annunciators, electrical household goods, signaling apparatus and systems. The catalog is fully illustrated and is prepared with special reference to the contractor-dealer.

Herbert Metz, advertising manager of the New York supply department of the Western Electric Company, is listening in breathless horror to the lurid tale of the Wild and Woolly West as told by A. C. Cornell, Denver manager for the same company. The two gentlemen are returning from the convention of the Rocky Mountain division of the N.E.L.A. held at Colorado Springs, Colo.

C. F. Braun & Company, Alhambra, Calif., are distributing copies of their booklet No. 109 descriptive of Braun strainers.

Altorfer Bros. Company, Peoria, Ill., has added a vacuum type machine to its line of electric washers. This is said to give the company a complete line of all types of electric washers.

Curtis Lighting, Inc., Chicago, Ill., has prepared a series of ten-minute talks on the subject of school, store, church, office, theater, outdoor and home lighting, that has been broadcast from Station WQJ, Chicago. It is planned to broadcast a similar series from Salt Lake City, Utah, Los Angeles and San Francisco, Calif., and Portland, Ore.

The Erbes Resonator Company, Everett, Wash., has purchased the plant of the Everett Pattern Works at 2822 Baker Avenue and will immediately convert the two-story structure into a factory for the manufacture of Erbes Voicer, a loud speaker cabinet which is designed to accommodate any radio set. The company is giving a series of free demonstrations and entertainments to the public to display its product.

Harry J. Martin, National Carbon Company, Seattle, Wash., and president of the Seattle Electric Club, has moved his headquarters from 1206 L. C. Smith Building to Suite 1301-2 in the same building.

The Monrovia Electric Shop has been opened in Monrovia, Calif., by J. E. Donahue, formerly in the motor department of Fairbanks, Morse & Company, Los Angeles, Calif., and James Fairfield, formerly electrical contractor of Alliance, Neb. The company will do a general wiring and appliance sales business.

The Sangamo Electric Company, Springfield, Ill., has issued "Sangamo Amperehour Meters for Train-Lighting Systems," a pamphlet dealing with its meters Types N, NCI and NCR, with a special section devoted to "Head-end Systems" and "Straight Storage Systems."

The General Electric Company has designed a new automatic starting compensator, CR-7051-J1, for squirrel cage induction motors. This motor starter is for remote control of constant speed two- or three-phase squirrel cage motors up to 600 volts for general applications driving line shafting, pumps, compressors, blowers, conveyors, etc. With it such equipments may be started or stopped from a distance by means of one or more small hand-operated push-buttons or snap-switches located within convenient reach of the operator or automatically operated by pressure governor, float switch, thermostat, etc. Various new and important features include definite and adjustable time acceleration by means of a new induction type relay; positive overload protection of the complete equipment through a double pole, inverse time, temperature overload relay; easy access to all parts provided by back-to-back mounting of starting and running magnetic contactors in sheet steel enclosing case. A conduit box at the back has several knock-outs and furnishes entrance for all power and control wires to the motor starter.

Maydwell & Hartzell, Inc., San Francisco, Calif., has consolidated its Los Angeles office, formerly located in the Transportation Building, with its new warehouse at 455 Colyton Street, that city. Complete stocks of pole line construction materials manufactured by companies which the firm represents will be carried in the Los Angeles warehouse for better service to customers. E. S. Condon is in charge of the branch. He is assisted by William A. Lyons, formerly connected with the Pacific Electric Railway Company of Los Angeles. Thomas C. McClure, until recently with The Pacific Telephone & Telegraph Company, Los Angeles, has also joined the staff.

The Electric Corporation, Los Angeles, Calif., formerly Westinghouse Lamp Company distributors, has recently become distributor of Peerless National Mazda lamps.

Personals

R. Kower, of the Electric Storage Battery Company, San Francisco, Calif., was elected president of the Electric Transportation Association of that city at the recent annual election. Mr. Kower studied electrical engineering at the University of California and later continued his study while employed by

E. KOWER

the Sierra & San Francisco Power Company. During his service with that company he occupied variously the positions of boilermaker's helper, operator, draftsman and substation construction foreman. During the World War he was assistant to the Expert Electrical Aid at the Mare Island Navy Yard, Mare Island, Calif. Following the war Mr. Kower did evaluation work on the boiler plant equipment of the Standard Oil Company in conjunction with Ford, Bacon & Davis. Since 1920 he has been associated with the Electric Storage Battery Company devoting the major portion of his time to the application of storage batteries to motive power problems.

L. R. Sheeley, formerly chief clerk at Yakima, Wash., for the Pacific Power & Light Company, has resigned to accept a position as superintendent of the Bend Water, Light & Power Company, Bend, Ore. Mr. Sheeley has been with the Pacific Power & Light Company in the new business and accounting departments since 1910, having been chief clerk at Sunnyside, Wash., and Pendleton, Ore., prior to his transfer to Yakima in 1917.

W. D. McDonald, manager of the Seattle, Wash., branch of the Westinghouse Electric & Manufacturing Company, won the Blethen Trophy in the final match of the annual electric tournament of the Seattle Golf Club recently.

George M. Boyd, illuminating engineer of the Westinghouse Electric & Manufacturing Company, recently addressed the Electric Club of Seattle, Wash., on the subject of "Light Control," at a meeting at which **John J. Hayes**, of the Westinghouse Electric & Manufacturing Company, presided.

R. L. Hearn, assistant chief engineer of The Washington Water Power Company, Spokane, Wash., attended the meetings of the Technical National Section of the National Electric Light Association held at St. Louis, Mo.

Arthur E. Rowe, sales manager of Garnett Young & Company, San Francisco, Calif., recently spent several days in Sacramento, Calif., on business in connection with his firm.

P. P. Pine, of the San Diego Consolidated Gas & Electric Company, San Diego, Calif., and secretary of the Electric Club of San Diego, was a recent Los Angeles visitor.

N. G. Harvey, of the Illinois Electric Company, Chicago, Ill., was recently in San Francisco, Calif.

H. H. Courtright, president of the Valley Electrical Supply Company, Fresno, Calif., was recently in San Francisco.

E. B. Criddle, of the Southern Sierras Power Company, Riverside, Calif., was a recent visitor to San Francisco on business for his company.

C. V. Schneider of the Electrical Supply Company, Sacramento, Calif., president of the Electrical Contractors and Dealers' Association of that city, was a recent visitor to Baystate near Plymouth, Calif.

Brice B. Burkett, of the Westinghouse Electric & Manufacturing Company, Seattle, Wash., was recently in San Francisco, Calif., on business.

A. F. McCallum, of the Westinghouse Electric & Manufacturing Company, Denver, Colo., was recently in San Francisco, Calif.

Colin B. Kennedy, of the Colin B. Kennedy Company, St. Louis, Mo., was recently in San Francisco, Calif.

J. L. Kline, president and manager, Western Light & Fixture Company, wholesale electrical jobbers of Los Angeles, Calif., just recently returned from the Hawaiian Islands. Mr. Kline was visiting there as a member of the Los Angeles Chamber of Commerce excursion to Honolulu and reports business very favorable in that region.

Walter F. Price, executive secretary of the California Electragists, San Francisco, Calif., recently spent some time in Sacramento in connection with association work. He attended a meeting of the Electrical Contractors' and Dealers' Association with the power companies.

Elmer B. Read, manager of the radio department, Illinois Electric Company, Los Angeles, Calif., has just returned from a two months' visit to Arizona and southern California cities, where he has been in the interests of the company.

S. Herbert Lanyon, Pacific Coast representative for Lapp Insulator Company, M. H. Dietrick Company and other Eastern factories, has just returned from a trip to the Northwest in the course of which he opened a sales office in Portland, Ore. The northern office is located in the Board of Trade Building and will be in charge of **C. R. Currier** who has been connected with Mr. Lanyon for some time in the capacity of a sales engineer.

J. E. Donahue, formerly in the motor department of Fairbanks, Morse & Company, Los Angeles, Calif., and **James Fairfield**, formerly electrical contractor of Alliance, Neb., have opened a general wiring and appliance sales store at 148 East Orange Street, Monrovia, Calif.

Otto Demmert, of The Demmert Company, manufacturers' agents of Los Angeles, Calif., has left for a three weeks' visit to various Eastern centers. Mr. Demmert went to Washington first, where he interviewed the supervisor of architecture of the U. S. Government in regard to various installations on the Pacific Coast. He will afterwards go to Philadelphia where he will attend a conference of electrical engineers of the Cutter Electrical Manufacturing Company, manufacturers of the ITE Circuit Breakers. From Philadelphia Mr. Demmert will go to New York City to look after various other lines which he expects to represent on the Pacific Coast. From New York he will then go to Pittsburgh, Chicago and Los Angeles.

Harry Burgess, formerly of Toledo, Ohio, and **R. C. Murray** have organized the B. & M. Electric Company and will be located at 1420 South Second Street, Arcadia, Calif. They will specialize on wiring and contracting.

William A. Lyons, until recently in the purchasing and stores department of the Pacific Electric Railway Company, Los Angeles, Calif., has become a member of the sales force of the Los Angeles office of Maydwell & Hartzell, Inc., as assistant to E. S. Condon, manager.

H. T. Plumb, engineer of the Denver, Colo., and Salt Lake City, Utah, offices of the General Electric Company, was a recent visitor to Pasadena and Los Angeles, Calif., attending the convention of the American Institute of Electrical Engineers. While in southern California Mr. Plumb delivered a very interesting address before the Electric Club of Los Angeles.

J. W. Wrenn, range sales manager of the Great Western Power Company, San Francisco, Calif., recently spent several days in Sacramento, Calif., on business.

T. P. McCrea, secretary of the Los Angeles Gas & Electric Corporation, Los Angeles, Calif., has been elected to a directorship in that company. In 1893 in the capacity of accountant Mr. McCrea entered the service of the Los

T. P. McCREA

Angeles Lighting Company and the Los Angeles Electric Company. His rise has been rapid, and he has occupied successively the posts of auditor, purchasing agent, assistant secretary and secretary. The latter position he has held for the last eight years.

J. D. Nicholson, who for the past five years has been manager of the electrical department of the Mine & Smelter Supply Company's Salt Lake City branch, has been appointed assistant manager of that company's Denver office.

H. F. Hartzell, vice-president and general manager of Maydwell & Hartzell, Inc., San Francisco, Calif., recently made a trip to Los Angeles in connection with the expansion of the company's branch in that city.

E. M. Cox, proprietor of the Claremont Electric Company, San Bernardino, Calif., has moved to larger quarters at 131 Yale Avenue, that city, where he will continue his complete stock of appliances and, in addition to wiring, will represent Washer Wilson.

George A. Gray, president and manager of the George A. Gray Company of San Francisco, Calif., was a recent visitor to Los Angeles.

A. E. Peat, of the San Joaquin Light & Power Corporation, Fresno, Calif., was a recent visitor to San Francisco.

Gaylord B. Buck, recently appointed manager of the electrical merchandising division of the Public Service Company of Colorado, Denver, Colo., in the reorganization of its commercial department, was until his transfer the manager of the new business department of the Durham, N. C., Public Service Company, another subsidiary of the Doherty organization. Mr. Buck is a native of Mt. Vernon, Ill., and his first association with a utility company was in 1910 when he entered the employ of the Citizen's Gas, Electric & Heating Company of that city as a trouble shooter. Later he became cashier of the company and in 1913 he was appointed a representative in the new business department of the same company. The following year he became manager of the department and was transferred to a similar position with the City Light & Water Company, Amarillo, Tex., where he remained until 1917. Through another transfer he became new business manager of the Durham Traction Company which later was

GAYLORD B. BUCK

enlarged into the Durham Public Service Company. He was a member of the Rotary Club in that city. Since his arrival in Denver he has taken an active interest in civic affairs and also in the operation of the Electrical Cooperative League in that city.

Carl E. Johnson and **Harry G. Steel,** vice-president and president respectively of the U. S. Electrical Mfg. Co., Los Angeles, Calif., have been making an extended visit to Eastern industrial centers in the interest of their company which makes the "U.S. Motor."

Irvin L. Weber, electrical engineer, Seattle, Wash., recently appeared before the Electric Club of Seattle, and discussed the subject of "Filtered Sunshine and Better Home Lighting."

Thomas C. McClure, formerly connected with the Western Electric Company, Omaha, Neb., and for the past five years outside plant engineer for the Pacific Telephone & Telegraph Company, Los Angeles, Calif., has joined the staff of Maydwell & Hartzell, Inc., in the latter city.

J. E. Crilly, of the Western Electric Company, San Francisco, Calif., was a recent Los Angeles visitor.

R. C. Moeller, general manager of the Collyer Insulated Wire Company, Providence, R. I., has recently spent some time with Allied Industries, Inc., San Francisco, Calif., Pacific Coast representatives of the factory.

G. B. Kirker, manager transportation division, Westinghouse Electric & Manufacturing Company, Los Angeles, Calif., has just recently returned from an extended trip East in the interests of his company. He visited the factory at Pittsburgh, Pa., also the New York City and Atlantic City offices.

E. O. Shreve, manager, General Electric Company, San Francisco, was a recent visitor in Sacramento, Calif. While there he addressed the members of the Rotary Club at their weekly luncheon on the development of the electrical industry.

Victor W. Hartley, executive secretary, California Electrical Cooperative Campaign, was a recent visitor to Los Angeles, looking after the interests of the Home Lighting Contest in that section.

Andrew G. Orear, manager of the Westinghouse department, Illinois Electric Company, has just recently returned from a three weeks' trip to the Arizona territory, where he was looking after the interests of the company.

A. T. Richardson, of the Wholesale Electric Company, San Francisco, Calif., attended the meeting of the Masonic Grand Lodge held at Los Angeles, Calif., Oct. 14-17.

A. C. Holden, formerly sales manager of the electrical division of the General Railway Signal Company, Rochester, N. Y., has been appointed Pacific Coast manager of that company. Mr. Holden will make his headquarters at San Francisco, Calif., and will also represent the G. R. S. Products, Inc., of Albany, N. Y., a subsidiary of the former concern.

Heckert L. Parker, formerly sales promotion engineer of the Pacific Fire Extinguisher Company, San Francisco, Calif., has been made managing director of the Pacific Radio Trades Association. Mr. Parker will make his headquarters in the Monadnock Building, San Francisco. This office will also be headquarters for the Pacific Radio Exposition which is held under the auspices of the association.

George A. Campbell, manager of the Truckee River Power Company, Reno, Nev., attended the meeting of Stone & Webster property managers held at Boston, Mass.

J. A. Ramsey, formerly assistant sales manager, National Carbon Company, San Francisco, Calif., has been appointed Pacific Coast manager of the radio department of the Pacific States Electric Company in that city, succeeding Ellery W. Stone, now president of the Federal Telegraph Company. Mr. Ramsay is well known in the electrical industry, especially to radio "fans," as he has delivered a series of talks on radio batteries and kindred subjects that have been broadcast by station KLX. Among his other duties, while with the National Carbon Company, was the writing of general sales letters to jobbers and dealers in eight West-

J. A. RAMSEY

ern states and in the Orient. His acquaintance with the field, his knowledge of the line and his former training should be of invaluable assistance to him in his new position. Born in California in 1891, Mr. Ramsey was graduated from the University of California with the class of 1917. During the World War he served in the Field Artillery and received a commission as first lieutenant.

Harold M. Pomeroy, secretary and treasurer of the J. G. Pomeroy Company, Los Angeles, Calif., was in San Francisco recently on personal and company business, the former including attendance at a football game. The Pomeroy company represents Rome Wire Company, Edwards Mfg. Co., and other well known electrical manufacturers.

Obituary

Robert Thompson, of the firm of Thompson & Castleton, Inc., electrical contractors and dealers, died at his home in Seattle recently after a year's illness. Mr. Thompson was 42 years of age, and was a pioneer in sawmill electrification work and electrical sluicing operations. Mr. Thompson was a member of the Electric Club of Seattle, the Engineers' Club and the American Institute of Electrical Engineers.

D. D. Robinson, foreman at North Tower substation of the Pacific Gas and Electric Company, San Francisco, Calif., was electrocuted while working on high tension lines during a recent storm.

Trade Outlook

San Francisco

The result of the national election has produced here, as elsewhere, a general feeling of confidence and optimism. This has been increased in the electrical industry by the decisive defeat of the California Water and Power Act, tantamount to a vote of confidence in the private power companies, and continuation of the extensive program mapped out for betterments is assumed. Dealers report an improved market for vacuum cleaners and washing machines. Radio business is excellent, with an increasing call for the more expensive sets. A steady demand from dealers for antenna wire and insulators is reported. Intensive campaigns waged by jobbers and dealers have resulted in good lamp business. Collections are good.

Building continues at a steady pace. The announcement of the letting of a contract for a new central office building in the Pacific-Bay View district to be erected for the Pacific Telephone & Telegraph Company, and the issuance of a permit for the construction of a 15-story annex to the Clift Hotel should be of interest to electrical contractors.

Heavy rains have brightened the outlook in the surrounding territory, and this in turn is being reflected in San Francisco and the Bay district. Christmas buying is getting under way, and, in general, the outlook is good.

Los Angeles

The real estate market in this territory has shown signs of strengthening during the month. Industrial production has remained steady, and the improvement of the power situation has reduced to a minimum the inconvenience to which some industries were subjected during the early part of the summer. The petroleum output in the Los Angeles basin remains practically constant.

The wholesale and jobbing trade has been stimulated by the fall buying movement, and this has in turn been reflected in the increase in business of the manufacturers. Retail trade has been steady in the metropolitan district. This has been particularly true in the electrical retail business, some retail stores reporting conditions greatly improved over the same period of last year, and there has been considerable increase in the first part of November over the month just past. Radio sales have increased considerably, and in some cases demand is so great that it is difficult to secure an adequate supply of some makes of radio sets.

Building activities for the last two weeks show signs of improvement over the same period of last month; however, they are somewhat below the same period of last year.

Denver

Substantial increases have been noted in central station earnings, and with renewed confidence as the result of the election considerable additional industrial activity is promised. Oil developments are progressing rapidly in every section of the state, and general business is being stimulated accordingly.

Building authorized in Denver in October amounted to $2,769,200, which brought the total of building in Denver this year to the unapproached sum of $22,422,550, an amount almost two million larger than the total for the entire twelve months of 1923, the recordbreaking year heretofore. Permits issued during the first part of November, especially for dwellings, continued at about the same rate as in the previous month, and with splendid weather prevailing thus far additional records are anticipated. Construction is expected to start soon on two new hotels, each costing over a million dollars, sites for which have already been secured. The volume of building, particularly that of residential construction, naturally reacts favorably on the sales volume of electric lighting fixtures, household equipment and appliances.

Another index of the satisfactory fall business being experienced in this region is the record number of car loadings reported in October. Figures from all the railroads indicate an increase of 12,000 over the same month last year.

Salt Lake City

Merchants are looking forward to a larger volume of Christmas buying this year than has been the case for some time. Electrical gifts will be strongly featured again this year, and electrical dealers anticipate a very favorable buying attitude on the part of the general public.

The mining industry is still in a thriving condition, with increased tonnage being reported for practically all of the large mines. State banks are in better condition than they have ever been in the history of Utah, according to the last report of the state bank examiner. Collections have shown some improvement during the past few weeks. Building permits for Salt Lake City during October this year showed a fair increase over October, 1923.

The condition of the average Utah and Idaho farmer for the present year is twenty-five per cent better than last year, according to close observers of agricultural and financial conditions in this section. In addition to other standard farm products, from 19,000,000 to 20,000,000 lb. of alfalfa seed will be produced in Utah this year, an increase of twenty per cent over last year's production. A conservative estimate of the income for this crop is placed at from $2,900,000 to $3,300,000.

Seattle

Electrical dealers report that sales volume of electrical equipment, devices and supplies are holding up fairly well, with slight tendency to quietness in some lines. The movement of Christmas goods to dealers and central stations is increasing rapidly, merchandise including electric ranges, irons, heaters, percolators and gift ware. There is every indication that holiday trade will be heavy. Increasing interest is being shown in electric home heating equipment, and several large contracts have been placed for electric furnaces during the past month. Stocks are adequate, and prices are holding firm.

Despite inclement weather, building construction has increased in volume during the past two weeks. Completion of several large building projects has caused a surplus of building workmen, but new projects planned are expected to absorb these. Reports from other cities in the Puget Sound district indicate considerably more building than at this time last year. Unemployment is more in evidence than it has been for several months, although the prospect is not serious.

Reports from the lumber industry indicate that business is holding up well, with increasing demands from Eastern sources. Reports for the month of October showed shipments of sixteen per cent above new business.

Portland

Retail sales are rather slow, and central station business is not up to expectations. Electric ranges are moving well, however, and electric heaters are also being sold in quantity. Generation in the plants around Portland was nearly ten per cent greater during October this year than during the same month in 1923. Consumption of energy in the lumber and wood-working industry in October showed a loss over the same period of a year ago, while manufacturing generally showed a substantial increase.

Lumbering is reported as inactive, but fairly steady. Dealers are running on low stocks, depending on the mills to meet shipping requirements promptly. Quotations are many, but the orders are few.

Building, particularly home construction, is going ahead, and many new residences are being started in all parts of the city. Indications are that there will be practically no let-up in housebuilding throughout the winter months.

The freight movement to Europe is unusually heavy. The principal commodities are lumber, wheat and fresh apples, the latter being carried largely in refrigerator ships. Exports to Atlantic and California ports are light.

Spokane

As a result of the election, confidence in the future has been stimulated in all lines in this territory.

The local packing plants continue operating at a level practically the same as last year, with some increase noted in the case of the smaller plants. The lumber market continues dull, with stocks of rough lumber depleted and the stage set for a resumption of activity.

A series of heavy rains beginning the last week in October has had a good effect upon the morale of the agricultural interests, justifying the expectation of a good winter wheat crop. The group of local dairies is enjoying an increase in business as compared with a year ago, with prices firm and a tendency to increase.

Recent advances in price of lead have had the effect of stimulating trading on the local mining exchange. The mining conditions in the Coeur d'Alene district of Idaho and in British Columbia are excellent, and no decline is anticipated.